

Stucco in the Architecture of Iran and Neighbouring Lands: New Research – New Horizons

Conference Booklet



Details of the niche of the carved stucco mihrab of the Neyriz Friday mosque, Neyriz, Iran (Ana Marija Grbanovic)

A conference hosted by the University of Bamberg
Islamic Art and Archaeology, Institute of Oriental Studies
Schillerplatz 17, 96049 Bamberg

4-7 May 2022



Stucco ornament at the Gunbad-i Alawiyan mausoleum, Hamadan, Iran (Iman Aghajani)

Conference Programme

Day 1 / 4 May 2022 18:00	Location: Dominican Library Hall Welcome Addresses by the Mayor of the City of Bamberg, the Dean of the Faculty of Humanities and the Director of the Oriental Institute of the University of Bamberg Keynote: Stucco in Iran and Neighbouring Lands. Reviving faded colours through art history (Lorenz Korn) Refreshments
Day 2 / 5 May 2022 09:00 09:30 10:00-12:00 12:00 13:30-15:30	Location: Institute of Oriental Studies, Room 00.13 Conference Registration Lorenz Korn: Opening Remarks <i>Panel 1: Research of Persianate Stuccos: Past, Present and Future</i> Chair: Lorenz Korn Renata Holod Recovering Rayy: Erich Schmidt's Excavations at Rayy, Iran, and their Contribution to the Study of the Material Culture of Medieval Iran Claus-Peter Haase From Iran to "The Western Boundaries" or vice versa: Possible trends in the development of early Islamic stucco motives and structures Robert Hillenbrand Iranian Saljuq Stucco in Anatolia Yves Porter and Anais Projecting and Combining Stucco and Luster Décors in Ilkhanid Architecture Leone Lunch Break <i>Panel 2: Pre-Islamic to Saljuq Periods</i> Chair: Ana Marija Grbanovic Meysam Labbaf-Khaniki Identification and Technical Examination of the Stucco Decorations from Bazeh-Hur in North-Eastern Iran Niloufar Ehteshami Continuity or Discontinuity in Stucco Motifs from Sasanian to the Early-Islamic periods: Finds from the Jahangir and Gowriyeh Sites in Ilam, Iran Maryam Moeini Some Little-known pre-Ilkhanid Architectural Revetments from the Friday Mosque of Tabriz Iman Aghajani Innovations in Stucco Decoration during the Seljuq Period in Iran Coffee Break <i>Panel 3: Western Boundaries</i> Chair: Claus-Peter Haase Andrea Luigi Corsi Beyond the 'Samarra Styles': Reconsidering the 10th-century Stuccowork in Deir al-Surian as a Reflection of Post-Samarra Mesopotamian Stucco Production
15:30 16:00-18:00	

	Sheila Blair (on-line)	Stucco Workers, Luster Potters and Builders: The case of Hasan ibn 'Ali ibn Ahmad ibn Babawayh al-Vidguli
	Bernard O'Kane	Mamluk stuccos - the Iranian Connection?
18:30	Reception at the University of Bamberg Museum of Islamic Art (the Bumiller Collection), welcome by Verena Daiber (Curator)	
Day 3 / 6 May 2022	Location: Institute of Oriental Studies, Room 00.13	
09:00-10:30	<i>Panel 4: Ilkhanid Stuccos</i>	
	Chair: Iman Aghajani	
	Ana Marija Grbanovic	Uljaytu's Mausoleum at Sultaniyya and its Architectural Revetments (North-western Iran, 1305-1316/20)
	Bahareh Taghavinejad (on-line)	Some Pieces of Evidence of the Personal Style of Damghani Artists in the Stucco Decorations of the Ceiling of Soffe-ye Darvish in Isfahan Grand Mosque
	Elaheh Alvandiyani (on-line)	Introduction and Recognition of Stucco Technique of the Tomb of Seyyed Roknuddin Yazd
10:30	Coffee Break	
11:00-13:00	<i>Panel 5: Techniques and Archaeometry</i>	
	Chair: Lorenz Korn	
	Amir Hossein Karimy and Parviz Holakooei (on-line)	Blue 'Out of the Blue': Scientific Studies on the Blue Pigments Applied on Persian Stuccos
	Moslem Mishmastnehi and Tomasz Stawski	Crystals of Gypsum in Hands of Masters: Interdisciplinary approach to understand the <i>chaîne opératoire</i> of Seljuk and Ilkhanid Stuccoes
	Marco Brambilla	Pre-fabricated Stucco Decorations in Sultaniyya
	Stefan Masarovic	Material Examination of Five Persian Islamic Stucco Objects: Three monumental figurative panels and two further objects preserved at the Museum of Islamic Art in Doha
13:00	Lunch Break	
14:30-16:30	<i>Panel 6: Eastern Boundaries</i>	
	Chair: Moslem Mishmastnehi	
	Viola Allegranzi and Sandra Aube	The Noh Gonbad Mosque in Balkh: New insights into its stucco decoration
	Richard McClary and Ahmad Yengimolki	The Qarakhanid Stucco Decoration in the Shah Fazil Tomb at Safid Buland, Kyrgyzstan: A Unicum in Context
	Valentina Laviola	Ghazni Stuccoes. From an Old Excavation to a Synergic Study of the

Architectural Decoration of the
Ghaznavid Palace

16:30	Coffee Break	
17:00-18:30	<i>Panel 7: New Ideas and Approaches</i> Chair: Marco Brambilla	
	Ruba Kanaan (on-line)	Matter, Mode, and Making: Stucco in the legal texts of Iran and Central Asia (11th-13th c.)
	Katherine Hughes	Vitalised Geometry: The ecology of Early Islamic Central Asian stucco ornament and non-representational haptic space.
	Giuseppe Labisi (on-line)	Stucco Decoration in Semi-Domes Squinches. Sasanian Architectural Heritage within Early Islamic Architecture
19:00	Speakers' Dinner, "Efendi" Restaurant	

Day 4 / 7 May 2022 **Location: Institute of Oriental Studies, Room 00.13**

09:30-11:30	<i>Panel 8: Conservation and Preservation of Stuccos</i> Chair: Sandra Aube	
	Rosario Paone	Esfahan, IsMEO Restorations of Stucco and Plaster in the Seventies
	Hamed Sayyadshahri and Mohammad Mortazavi	Reconstruction of Missing Parts of the Stucco Decorations: Some Restoration Experiences
	Yaser Hamzavi	The Contemporary Challenge for Conservators to Preserve Creative Stuccoes from the Past: Molded stucco of the tomb of Sayyid Rukn al-Din and Sayyid Shams al-Din in Yazd
	Majid Montazer Zohouri and Iman Aghajani	Archaeological Studies on Islamic Stucco Decorations in the Storage of National Museum of Iran
11:30	Coffee Break	
12:00	Final Discussion and Closing Remarks	
13:00	Lunch Break	

In the afternoon: Visit to the Schönborn prince-bishop residence of Pommersfelden

19:00 Opportunity for dinner at the historical Klosterbräu brewery in Bamberg

Acknowledgements

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Iman Aghajani, M. A.

Ana Marija Grbanovic, M. A.

Prof. Dr. Lorenz Korn

Moslem Mishmastnehi, PhD



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Paper Abstracts

Keynote

Stucco in Iran and Neighbouring Lands. Reviving faded colours through art history

Lorenz Korn, University of Bamberg

Stucco has been widespread throughout the history of architectural decoration since antiquity, for its workability and relatively low costs. Some of the most fascinating works of decoration such as the mihrab of Uljaytu in the Great Mosque of Isfahan or the decoration of palaces like the Alhambra have been made of stucco. This paper attempts to outline some of the developments, to indicate methodological challenges and to highlight the potential of stucco for further research. For historians of Islamic Art, stucco is frequently dealt with as a classic chapter in the history of Islamic ornament, in a period when the artistic heritage from Mediterranean and Persian pre-Islamic cultures became fused to form new styles. While stucco decoration in the 9th-century palaces of Samarra is a catchword that triggers memories of textbook knowledge, it is important to observe that it only forms a small part of a long history, and that even for this seemingly well-studied period, research offers new insights. In chronological perspective and from the stylistic point of view, it is obvious that the efflorescence of stucco decoration in Iran happened two centuries after the Samarra period. It is not only a rich array of motifs that unfolded during the Saljuq period, but also the manner in which these elements were arranged in repetition and variation to form rich compositions, apt to dazzle the eye of the beholder. Between c. 1050 and 1400, stucco was the preferred material for sculpted interior decoration, and it seems that stylistic ambitions encouraged technical development. Dense compositions of interlacing vegetal elements, overlaying and undercut forms can be observed in a variety of modes, which provokes questions of how techniques and styles were transmitted. This development was not limited to Iran but had counterparts in neighbouring regions such as Anatolia and Syria, which raises the question of the geographical reach of 'Iranian' stucco. Besides, a closer look at existing remains reveals that stucco decoration was far from monochrome but in many cases was painted in bright colours. The study of pigments and recipes for coloured decoration has only just begun and promises highly important insight into aspects of art and material culture. It seems logical that the history of stucco changed drastically when glazed tiles became more widespread as material for architectural decoration. However, it should be noted that stucco continued to be used during the Timurid period and after. In fact, the highly sophisticated architectural decorations of the 16th to 19th centuries in Iran, Central Asia and India are closely tied to the medium of stucco. In sum, it appears that several methodological facets of art historical study combine fruitfully to study these materials in order to better understand the techniques that artisans applied and the aesthetic ideals that they attempted to achieve.

Panel 1: Research of Persianate Stuccos: Past, Present and Future

Recovering Rayy: Erich Schmidt's Excavations at Rayy, Iran, and their Contribution to the Study of the Material Culture of Medieval Iran

Renata Holod, University of Pennsylvania

In the late 1930s Erich Schmidt and his team spent three seasons excavating the site of Rayy and its environs, located to the south of Tehran. During these seasons, the team recovered a variety of materials: numerous ceramics and their kilns, glass, textiles, metal objects, etc. More unexpected were the variety of architectural decorations; among these, most interesting were the stuccoes. Datable to various times from the 9th to the 11th cc. CE, these would have decorated entrances and interiors of reception halls. They illustrate a variety of themes; most interesting are those illustrating topics from the Shahnameh. My presentation will discuss the excavated ones in terms of the visual and material culture of Persia.

From Iran to “The Western Boundaries” or vice versa: Possible trends in the development of early Islamic stucco motives and structures

Claus-Peter Haase, Museum für Islamische Kunst Berlin

As long as technological analyses have not sufficiently been made known for the regional differentiation of stucco panels from Iran/Central Asia and Iraq/Jazira (at least before this workshop) refined stylistic analyses may be helpful. The surprisingly rich corpus of stucco revetment ornaments from Samarra have as yet no matching compound in a single Iranian site, but altogether the material from various buildings in Iran and Mavarannahr is rich. The style questions concern the relation of geometric or vegetal structuring elements on panels and the possibly ambiguous interpretations of motifs, like the recently revived question of the origins of hidden figurative allusions. Could the stylistic changes, for instance in the importance of geometric structures in stucco reliefs (and of course not only in this material) be related to political changes? This is very difficult to decide, given the chronological insecurity of many objects and the never completely hundred percent style change. Objects for discussion are again certain stucco elements from Samarra and Central Asia with ambiguous motifs, the dates of certain parts in the Nayin Mosque mihrab, and of later panels from Nishapur and the Tehran National Museum.

Iranian Saljuq Stucco in Anatolia

Robert Hillenbrand, University of Edinburgh

The Saljuq mosque in Van, which was destroyed by an earthquake during World War I, uses lavish plaster decoration often enough in the dome chamber to indicate that it was a regular if secondary part of this architect's repertoire, as it was for his peers in Iran proper in the 11th and 12th century. Carved stucco creates an animated backcloth for several inscriptions; it forms a tightly gridded border for inscription bands; in the form of confident overlapping scrolls it overlays the brickwork in the spandrels of the transition zone; and, perhaps above all, it is the standard medium for the dense infill and interstitial ornament – vegetal, geometric and epigraphic - in the great strapwork compositions which are one of the glories of this mosque. But it is in the great trefoil panel west of the mihrab that it reaches new heights of skill and

daring, exploiting multiple levels. Here foliate elements themselves become fields for energetic surface ornament, being dotted and hatched. So sure is the technical finesse of this work that the impression is of a continuous interconnected vegetal web, bursting with life and making complete sense on its own terms, onto which the strapwork is imposed. That is very different from presenting the strapwork as the main focus of interest and filling each interstitial space with independent ornament, thereby relegating that ornament to secondary status. Instead, foreground and background are constantly changing places.

Projecting and Combining Stucco and Luster Décors in Ilkhanid Architecture

Yves Porter and Anais Leone, Aix-Marseille Université

The Ilkhanid period acknowledged the blooming of monumental decoration mainly based according to two very different techniques and materials: stucco and luster. In the frame of Shiite and Sufi shrines, luster tiles were repeatedly used, including for monumental mihrabs, while many other locations preferred to display stucco mihrabs. The reasons for such choices are difficult to objectivate. Conversely, studying the combination of both media through three different monuments (i.e., Khadija Khatun, Varamin, and Natanz), each having its own chronological sequence, offers various possibilities for the analysis of each elements' integration. Concerning the shrine of Abd al-Samad at Natanz, in which stucco and luster are contemporaneous with each other, the possibility of a general design, based on a modular scheme probably created by a "general contractor" (maybe Hasan ibn 'Ali ibn Ahmad Babawayh), emerges.

Panel 2: Pre-Islamic to Saljuq Periods

Identification and Technical Examination of the Stucco Decorations from Bazeh-Hur in North-Eastern Iran

Meysam Labbaf-Khaniki and Atefe Shekofte, University of Teheran and Art University of Isfahan

Thanks to three seasons of excavations at Qale Dokhtar of Bazeh-Hur between 2018 and 2020 a complex of religious buildings revealed dating to the Parthian (?)–Early Islamic period. Archaeological excavations at the main part of this complex brought to light a collection of elaborate stuccoes decorating the shafts and capitals of the columns that were once erected inside a peristyle room. Moreover, the forms and contents of several discovered pieces testified that the façade of the walls were mostly covered with the stuccoes portraying the royal and religious scenes. Considering the identified phases of architecture and comparable stuccoes that have been examined earlier in other Sasanian sites of Khorasan, the stuccoes of Bazeh-Hur probably dated back to the second half of the Sasanian period, some of them were developed in the Early Islamic period. From an environmental point of view, the massive gypsum outcrops surrounding the Bazeh-Hur complex were providing the inhabitants with abundant resources for both construction and decoration of buildings.

In terms of archaeometry, the chemical identification was carried out with X-Ray diffraction method (XRD). In addition, the microstructures of the plaster and stucco were observed using Scanning Electron Microscopy (SEM). The results of XRD show the major phase of plaster and

stucco is gypsum and the minor phase is quartz; the chemical content of samples has some differences in the minor and trace phases relating to the presence of bassanite and anhydrite phase. For instance, in pure samples, anhydrite and bassanite are trace phases. The micrograph of samples reveals a dense microstructure including mainly acicular crystals of gypsum in high magnification beside rare quartz and huge crystals related to selenite. Consequently, the plaster and stucco of Bazeh-Hur are almost pure gypsum which have been set quickly so-called Ghache Tiz. It is interesting to note that burial interval has not changed the microstructure of the gypsum for more than a millennium.

Continuity or Discontinuity in Stucco Motifs from Sasanian to the Early-Islamic periods: Finds from the Jahangir and Gowriyeh Sites in Ilam, Iran

Niloufar Ehteshami, Tarbiat Modares University and University of Turin

The sequence of artistic and cultural traditions between the pre-Islamic and Islamic periods is always considered a challenging topic by the scholars of this study scope. In addition to the Gypsum as basic material, stuccos have been applied as a persistent decorative element in architecture for a long period. This study will concentrate on stuccos from two Sasanian sites in the southwest of Iran in Ilām province: Gowriyeh and Jahāngir. The aforementioned stuccos are decorated with geometric, vegetal, animal, and human motifs. The main purpose of this research is to study their motifs and compare them with the pre-Islamic stuccos. A careful study of the cultural materials from the mentioned sites indicates continuity at a certain value from the Sasanian to the Early-Islamic periods in the mentioned stucco motifs.

Some Little-known pre-Ilkhanid Architectural Revetments from the Friday Mosque of Tabriz

Maryam Moeini, University of Bamberg

The Friday Mosque of Tabriz is a large complex in the midst of the city; it is located close to the Tabriz historic Bazaar. Frequent earthquakes damaged this building repeatedly so that it has undergone several modifications since its foundation. The majority of the current structure of the monument dates to the Qajar period, however, there still remain important remnants of earlier architectural phases. The Ilkhanid stucco mihrab on the Qibla wall indicates that the history of this mosque goes further back, as its lower parts are hidden under the current ground level. In 1974, the Iranian Cultural Heritage Organisation carried out its first campaign of excavation in this mosque. The most significant finds comprised octagonal pillars, remains of a carved stucco mihrab with a Kufic inscription, and fragments of a wall painting on the eastern wall with a golden and red contours set against the blue ground. These little-known architectural revetments are located at a level below the monumental Ilkhanid mihrab. Therefore, it is reasonable to conclude that these decorations belong to the pre-Ilkhanid era. According to the architectural evidence and written sources, it seems reasonable to date these decorations to the phase of the Ravvādid rebuilding (architectural interventions) of the Tabriz Friday mosque.

Innovations in Stucco Decoration during the Seljuq Period in Iran

Iman Aghajani, University of Bamberg

Stucco used to be the most popular material of ornamentation in the early Islamic world due to its availability, flexibility, and affordability. By looking at a range of early Islamic stucco decorations from Samarra to Balkh, commonalities in motifs and techniques can be identified.

In the 11th to 12th centuries, some features of this earlier trend can also be found in monuments of the subsequent Seljuk period, such as the so-called Madrasa of Ray and the mausoleums of Davazdah Imam of Yazd and Pir Hamza Sabzpush of Abarkuh.

Despite of the existence of this established tradition of decoration, however, new forms and techniques of stucco revetment were also developed in Seljuq Iran. A distinctive feature of this period is the uniqueness of some of the stucco works, as in the case of the Mihrab of Heydariyya in Qazwin.

In light of these findings, this paper aims to identify innovations in the field of stucco decoration during the 11th and early 12th century in Iran. Based on a discussion of monuments in central Iran, it seeks to trace the possible contexts in the development of the stucco decoration of this period.



Details of stucco Kufic inscription in Heydariyya Mosque, Qazwin, Iran (Iman Aghajani)

Panel 3: Western Boundaries

Beyond the ‘Samarra Styles’: Reconsidering the 10th-century Stuccowork in Deir al-Surian as a Reflection of Post-Samarra Mesopotamian Stucco Production

Andrea Luigi Corsi, Sapienza Università di Roma

The early 10th-century architectural revetment of the church of the Holy Virgin and the Chapel of the forty-nine Martyrs in the Coptic “Monastery of the Syrians” (Deir al-Surian, Egypt, Western Nile Delta) constitute a unique evidence in the field of early Islamic stucco decoration for several reasons. In first place, its exact dating to 913-14 provides a rare chronological indication for this class of material, usually difficult to be precisely dated. Moreover, its direct connection with the stuccowork produced in Abbasid Mesopotamia speaks for a suggestive case of artistic exchange between Muslim and Christian communities. Despite the general consensus existing in identifying this work as a direct descent from the ‘Samarra Styles’, thus leading to its attribution to Iraqi craftsmen somehow connected with the caliphal building activities in the 9th century Abbasid capital, this paper will propose a different reading.

This view is in fact still influenced by the centre-periphery model laying at the base of the supposed phenomenon of global diffusion of the ‘Samarra styles’, failing to identify both the various sources of inspiration and the innovative aspects of the stucco revetment at Deir al-Surian. This paper aims at reevaluating these features, ultimately contextualising this stuccowork in a lively artistic milieu characterised by new experimentations and a reinterpretation of pre-Samarra decorative themes, providing an indirect but reliable glance on the developments of stucco production in post-Samarra Mesopotamia, for which no dated evidence is currently available.

Mamluk Stuccos - the Iranian Connection?

Bernard O’Kane, The American University of Cairo

The debt of Fatimid stucco to Iranian craftsmen has been well documented, particularly by Lorenz Korn. Cairo's receptivity to outsiders is also well documented in the case of Maghribi influence on stucco decoration. One notable and well published example of Iranian influence on Cairo stucco work in the Mamluk period is the mihrab of the madrasa of al-Nasr Muhammad. Other claimed examples (by Michael Rogers and Laila Ibrahim) are in the khanqah of Qawsun in the Southern Cemetery, and the khanqah of Umm Anuk in the Northern Cemetery. An analysis of these will be presented, showing that the case for Iranian prototypes has been overstated. However, there is one overlooked Mamluk monument with two fine stucco mihrabs, the Sahibiyya madrasa in Aleppo, for which a much stronger argument for Iranian influence can be made. The paper will explore in detail the possibilities for this.

Stucco Workers, Luster Potters and Builders: The case of Hasan ibn ‘Ali ibn Ahmad ibn Babawayh al-Vidguli

Sheila Blair, Boston College

The builder Hasan ibn ‘Ali ibn Ahmad Babawayh al-Vidguli is named three times as craftsman responsible for work in two shrines in Iran dating to the early fourteenth century during the period of Ilkhanid rule. His signature — by which I mean an inscription naming a craftsman responsible for the work and typically preceded by the word *‘amal* (“work of”), although not

necessarily in his hand — appears in slightly varied form in two stucco inscriptions and on a set of luster tiles. These three inscriptions in two media provide a springboard to examine the relationship between stucco carvers and other craftsmen including builders and potters along with the status of craftsmen, their mobility, and their family traditions in pre-modern Iran.

Panel 4: Ilkhanid Stuccos

Uljaytu's Mausoleum at Sultaniyya and its Architectural Revetments (North-western Iran, 1305-1316/20)

Ana Marija Grbanovic, University of Bamberg

This paper provides a discussion of one of the most significant, yet poorly understood monuments of the Ilkhanid period: the mausoleum for Sultan Uljaytu in the city of Sultaniyya in North-western Iran. The paper addresses some of the most significant aspects of the Uljaytu's mausoleum. It begins by examining the architectural structure of the monument with a focus on its architectural decoration, which is work of two decorative phases. It continues by addressing one of the most significant research questions tied to the architectural revetments of the interior of the monument: the question of why the monument was decorated in two phases. The next part of the paper discusses ways in which the monument reflects the socio-political climate of Uljaytu's reign. In order to contextualize the significance of the monument, the paper provides a comparison between the Uljaytu's mausoleum and other relevant Ilkhanid structures. The performed discussion concludes by proposing some remarks concerning the understanding of the significance of the mausoleum for comprehension of Ilkhanid art and architecture. In doing so, the research provides a new way of seeing of this imperial Ilkhanid monument and it ultimately impacts our understanding of Ilkhanid art and architecture.

Some Pieces of Evidence of the Personal Style of Damghanian Artists in the Stucco Decorations of the Ceiling of Soffe-ye Darvish in Isfahan Grand Mosque

Bahareh Taghavinejad, Art University Isfahan

In several examples of the stucco decorations left from the Ilkhanid period, inscriptions containing the history or name of artist stucco makers can be seen, which indicate the individual or regional style of them in that period. Among them, there are stucco decorations with Damghani nickname, which have unique features in terms of the type of motifs and composition and show the individual style of Damghani artists. On the other hand, there are exquisite stucco decorations on the ceiling of the Soffe-ye Darvish in the Isfahan Grand Mosque, which due to the fact that this part is built in the Seljuk style, there is disagreement in their dating. However, the undeniable visual similarities of these stucco decorations with gypsum arrays belonging to the Damghani family suggest that these decorations were probably made by one of the Damghani artists or there has been cooperation between stucco makers in Isfahan and Damghan. Therefore, the aim of this study is to investigate and compare the characteristics of plant, geometric, and written patterns and their composition in the stucco decorations belonging to Damghani artists with the stucco decorations of the ceiling of the Soffe-ye Darvish in the Isfahan Grand Mosque. Data collection was based on field research (photography - linear analysis of images) and with reference to written sources, which analyzes the data obtained from study samples by a descriptive/ historical method and a comparative approach. The results

of the studies indicate that there are many similarities in the form of arabesque motifs and their unique ornaments, including the use of overlapping circles as eyes, abstract (triangles), and Cathay motifs (flowers), in the samples. Other common visual features are the use of wavy plant stems in the background of the Kufic inscriptions and the widespread use of geometric ornaments, which have similarities in terms of the type of knot and the combination of plant motifs with geometric patterns. In addition to the above, the name of an artist/ builder from Damghan in the tile inscription belonging to a building from the eighth century AH in Isfahan can be effective in proving the hypothesis.

Introduction and Recognition of Stucco Technique of the Tomb of Seyyed Roknuddin Yazd

Elaheh Alvandiyan, MCHT Yazd

Among various branches of Islamic art, a respectful position belongs to architecture and its decorations. The city of Yazd is one of the most important cities in the Islamic period of Iran, which witnessed the emergence and survival of significant architectural works between the 5/11 and 8/14 centuries. This flourishing was on one hand due to the accumulation of wealth and scholars/Ulama, on the other hand, stay away from the Mongol invasion. The mausoleum of Seyed Rokn al-Din from 8/14 century is one of these important monuments, which has attracted a lot of attentions of researchers because of its particular stucco decorations with complex motives and unusual production techniques. The execution techniques of these stucco were unknown between scholars for a long time. The results of this research, with extensive interviews and cooperation with traditional masters in Yazd, sheds light on the production process of these stuccos.

This article presents an attempt to study the artistic style of stucco decoration of Seyed Rokn al-Din mausoleum and demonstrates their unique production techniques with the help of analytical methods and cooperation with traditional stucco masters of Yazd, as well as presenting the models made by this technique as the results of this investigation.

Panel 5: Techniques and Archaeometry

Blue 'Out of the Blue': Scientific Studies on the Blue Pigments Applied on Persian Stuccos

Amir Hossein Karimy and Parviz Holakooei, Art University of Isfahan

Dating undated stucco decorations appeared in Iran from the 11th century up to the 14th century has been often matter of speculation. Due to the similarities occur between the stucco decorations executed over the Seljuq and Ilkhanid periods, art historians are often reluctant to suggest a clear dating for these decorations unless robust architectural evidence is in hand. Based on micro Raman spectroscopy and X-ray fluorescence data obtained from nearly 60 blue paint samples collected from 31 monuments dated to a period spanning from the 11th to the 14th century, we tend to propose that the occurrence of blue azurite on an undated painted stucco can be considered as a marker for dating that painting from the 14th century onwards. We argue that while ultramarine blue was the dominant blue pigment used before the 14th century in Persian painting, azurite occurred in the palette of Persian painters in the 14th century. In the absence of firm scientific methods for absolute dating of gypsum-based mortars, our approach may be used as a rough dating of undated painted Persian stuccos. As an example, we argue that the mihrab of Masjid-i Jame of Golpaygan has undergone an intervention in the Ilkhanid period after the mihrab was first painted in the 12th century.

Crystals of Gypsum in Hands of Masters: Interdisciplinary approach to understand the *chaîne opératoire* of Seljuk and Ilkhanid Stuccoes

Moslem Mishmastnehi and Tomasz Stawski, University of Bamberg and Federal Institute for Materials Research and Testing Berlin

The microstructure of most Seljuk and Ilkhanid stucco decorations consists of micrometer-sized crystals of gypsum. The stucco-masters of these periods (neither nowadays stucco-masters) were not able to directly control the properties of these tiny crystals with their hands or centimeter-sized tools. There are, however, traces of *chaîne opératoire* accumulated in the materialistic body of these pieces, some of which could be explored through an interdisciplinary approach. Such an investigation requires very careful *in situ* observation of the macrostructure, and scientific analyses of the material to discover part of the production process for each body of stucco. Furthermore, there are deterioration factors, some of which are not yet fully understood, and should be identified using modern analytical instruments. These damaging factors could easily affect the micro and macro structure of a stucco decoration, influencing our interpretation. The concept of *chaîne opératoire* reframes our questions about the production process and probable dating technique of Seljuk and Ilkhanid stuccoes, while analyses of lab-made replicas and historic materials enhance our understanding and interpretation of these materials. Here we present the results of such a study for a large body of Seljuk and Ilkhanid stucco decorations at various sites in Iran, and present the potential of this approach as a new perspective in this field of research.

Pre-fabricated Stucco Decorations in Sultaniyya

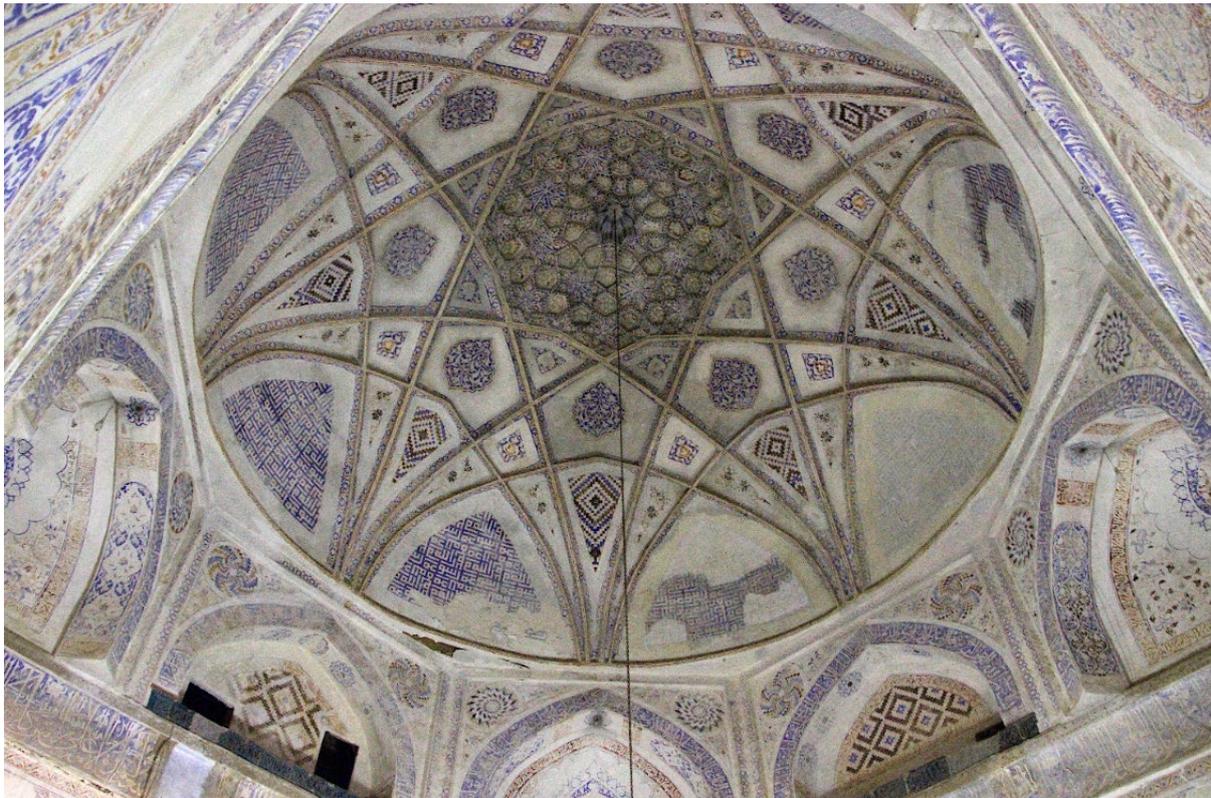
Marco Brambilla, MgbDomus

The mausoleum of Uljaiyту in Sultaniyya is one of the most spectacular monuments of Islamic architecture in Iran. This unique monument has influenced the development of Islamic architecture not only in Iran but in the entire region for many centuries. With a double shell brick dome spanning a diameter of 25 meters and reaching a height of almost 50 meters, it is also one of the largest historical structures in Iran. And every inch of its interior surface is fully decorated. Never before or after the inauguration of the mausoleum in 1313/1314 has there been a monument in Iran, with the volume and the complexity of the decorative program of Sultaniyya, and particularly the extensive use of its prefabricated decorations. In the first phase of the interior decorations, a surface of 2013 square meters was decorated with mostly prefabricated elements. In the second phase of the decorative program over 3000 square meters of stucco decorations were applied over the existing glazed tile and brick decorations. There is no doubt that the fast pace of the construction of this monument, which was essentially completed in about ten years, is also due to the use of prefabricated decoration, implemented with a variety of techniques and procedures. The planning, designing, prefabrication, and installation of these decorations are unprecedented in Iranian architecture. This paper will discuss the multifaceted use of prefabricated stucco decorations in Sultaniyya and the many aspects of its logistics, installation techniques, and final finishes.

Material Examination of Five Seljuk and Muzaffarid Carved Architectural Decoration Stucco Segments: Three monumental figurative panels and two further objects preserved at the Museum of Islamic Art in Doha

Stefan Masarovic, Museum of Islamic Art Doha

From the perspective of material science and technology, this paper examines and compares five stucco objects from various collections. The stuccos have been attributed to 12th - 14th centuries AD, originating from central and northern Persia. Only three so-called monumental figurative Seljuk panels are known today. They appeared on the art market in the 1930s and have since survived in distinct art collections all over the globe. Firstly, observations from the material examinations carried out on all three panels in 2016 will be discussed. The panels will be compared, two supported with museum published material analysis results. The outcomes of a recent examination conducted at Museum of Islamic Art in Doha is also to be included. Our key objective is to complete basic analysis of pigments and stucco plaster coming from MIA's collection of Persian medieval polychromed stucco objects. Finally, two more relevant objects will be added to this study, a Head from a Statue (SW.74) that allegedly originates from the same location as two aforementioned panels, and a Triangular Muzaffarid Decorative Panel (MIA.2013.43). The obtained results are a modest outcome of this examination adding to the corpus of analytical data that may allow future larger comparative studies.”



Wall painting repertoire of the Turbat-i Shaykh-i Jam complex, Turbat-i Jam, Khorasan, Iran (Ana Marija Grbanovic)

Panel 6: Eastern Boundaries

The Noh Gonbad Mosque in Balkh: New insights into its stucco decoration

Viola Allegranzi and Sandra Aube, Institut für Iranistik ÖAW Wien and CNRS

Located in the outskirts of Balkh, the Noh Gonbad mosque – locally known as Ḥājī Piyāda – was rediscovered in the late 1960s in the wake of the surveys conducted by Lisa Golombek, Galina Pugachenkova and Assadullah-Souren Melikian Chirvani. The carved stucco decoration preserved on the upper parts of the mosque is one of the most well-known features of the site, frequently reproduced in Islamic art literature through a handful of illustrations. Much less known are the stucco revetments of the lower parts, emerged over the last decade during the excavations carried out by the *Délégation Archéologique Française en Afghanistan* (DAFA) and the Aga Khan Trust for Culture. Relying on the outcomes of recent fieldworks, the present paper presents the general organisation of the stuccoworks, in a first attempt to reappraise the architectural decoration of this early Islamic mosque.

The Qarakhanid Stucco Decoration in the Shah Fazil Tomb at Safid Buland, Kyrgyzstan: A Unicum in Context

Richard McClary and Ahmad Yengimolki, University of York

The royal Qarakhanid tomb in Safid Buland, built in the mid-eleventh century CE, has suffered extensive losses to the internal stucco decoration since it was first photographed by Ernst Cohn Weiner in the early twentieth century, but a significant amount still survives. What remains is far from unstudied, with the main focus having been on the extensive programme of both historical and Qur’anic inscriptions, and the majority of the literature published in Russian.

Despite the scholarly attention that the building has received over the last century, its place in the wider corpus of early Central Asian stucco produced for Islamic patrons remains far from clear. Further study of the wide range of different types of decoration in what appear to be the same phase is still required.

This paper will re-examine both the surviving material and the archival photographs, in order to give as full a sense as possible of what there was, and where the decorative programme fits into the process of stucco development in the Persianate world in the period spanning the tenth and eleventh centuries.

Firstly, the links to earlier Samanid material will be shown, as well as the distinctively Qarakhanid elements of the inscriptions and the letter forms. Following this, and building on earlier studies of the inscriptions, greater emphasis will be put on reconstructing the areas of decoration for which only fragments remain. This will result in the fullest view yet of how the building would have originally looked, and how it fit into the contemporaneous regional styles of stucco more broadly.

Ghazni Stuccoes. From an Old Excavation to a Synergic Study of the Architectural Decoration of the Ghaznavid Palace

Valentina Laviola, Alma Mater Studiorum – University of Bologna

The excavation led in Ghazni by the Italian Archaeological Mission in Afghanistan from 1957 to 1978 returned numerous finds of architectural decoration in marble, alabaster, brick, and stucco.

The analysis of the stucco has been neglected for long time and it was only resumed when studies on the other materials were already well-established. Nevertheless, this delay allowed stuccoes to be considered within the framework of a synergetic study of the Ghaznavid Palace and its decoration. Though the stucco had a minoritarian role, its tight relation with brick – expressed in more than one way – confirms as one of the main trends of the Iranian area.

Facing issues of accessibility and preservation of finds, along with the challenging analysis of provenances, the comparison between stucco and other materials highlights either similarities or differences that involve morphologies, decorative patterns, techniques, epigraphic features, and polychromy. These aspects bear witness for specific choices within the integrated aesthetics of the Ghaznavid Palace.

Panel 7: New Ideas and Approaches

Matter, Mode, and Making: Stucco in the legal texts of Iran and Central Asia (11th-13th c.)

Ruba Kanaan, University of Toronto

The architecture of the Qarakhanids (c. 992-1212), Ghaznavids (977-1186), and Seljuqs (1040-1194) demonstrate an abundant use of stucco in various forms and techniques including carved and moulded examples of mihrab niches, decorative friezes, and wall panels that are decorated with figural images, inscribed panels, and geometric interlace. The same period is known for the prominence of a number of important jurists from Khurasan and Mā Warā' al-Nahr who had a major role in codifying the legal provisions for the Hanafī school of law. The writings of these jurists are specifically important for the study of material culture as they are known for using evidence based on issues and objects relevant to their own local context. This paper examines how the materials, working tools and techniques pertaining to the use of stucco are discussed in different types of legal sources including *fiqh*, *fatwa*, and *hisba*. It also addresses the types of workers (craftsmen/artist) involved in stucco as well as their rights and responsibilities.

Vitalised Geometry: The ecology of Early Islamic Central Asian stucco ornament and non-representational haptic space

Katherine Hughes, Independent Scholar

Stucco ornament found on pre-Islamic and early Islamic building revetments in Khurasan and Transoxiana, e.g. in Samanid Nishapur and Samarqand (9-10th century), elevates and wraps their surfaces, inviting a haptic, embodied response. It entices viewers' eyes to move over the stucco, and indeed, one panel in the Metropolitan Museum (40.170.176) shows eyes and hands intermingling. Abstract lines have multiple orientations, privileging movement, and their deliberate formal ambiguities sometimes hint at zoomorphism e.g. the panel with birds' heads with palmette scrolls in their beaks from Sabz Pushan (Met 40.170.443) and possible mihrab from the same site (plaster cast 37.40.43) and seemingly refuse subordination to meaning. This restlessness has travelled across media and can be seen in the contemporary carved wood from sacred sites in the Zarafshan Valley, such as the Iskodar Mihrab, which includes abstracting birds' heads and a fish whorl.

This paper situates early Islamic stucco within contemporary visual theory of the abstract line by revisiting Alois Riegl and Wilhelm Worringer as well as Henri Bergson's *élan vital*. The proposed ecology of ornament questions the boundaries between forms and surrounding space,

reflecting how organisms interact with their environments through a transformational flux of energy and matter. Thus, ornament is a process eschewing the aesthetics of traditional Western artworks' optical representationality. Contemporary non-representational theories on the immanent philosophy of matter rarely consider Islamic stucco ornamentation. Equally, stucco, through its materiality speaks to Deleuze's theories on the fold as the coexistence of depth and surface as well as illuminating the physical/metaphysical relationship.

Stucco Decoration in Semi-Domes Squinches. Sasanian Architectural Heritage within Early Islamic Architecture

Giuseppe Labisi, University of Konstanz

In my recent study dedicated to squinches related to semi-domes, it was possible to backdate the origin of this architectural device to the Sasanian-Islamic transitional period and to lay out a classification of the attested examples. From a structural point of view, this type of squinch spans the corner of the supporting walls and transmits loads to both sides of the corners. It is possible to find stucco decoration on the squinches of Church A at Qusayr (Iraq), in the building known as Kushk-e Ardashir in the Bozpar Valley and the building at Sarvestan (both in Iran), at Qasr al-Kharana (Jordan), Qasr al-Ukhaydir (Iraq) and in the Tari Khaneh mosque in Damghan and that at Fahraj (Iran). Seemingly, the use of stucco in this type of squinch has only a decorative function, while traces of painted decoration are preserved in only a few examples.

The aim of this paper is, therefore, not only to analyse decorative stucco design in this type of squinch by developing a first typological classification, but also to understand whether the stucco decoration can be organised by chronological periods and geographical areas. While it is evident that this type of squinch belongs to the Sasanian architectural tradition, it will be interesting to explore how the craftsmen of the Islamic period inherited and reworked this decorative architectural legacy and try to understand the relationship between pre-Islamic and Islamic period stuccoes correlated to this specific architectural element.

Panel 8: Conservation and Preservation of Stuccos

Esfahan, IsMEO Restorations of Stucco and Plaster in the Seventies

Rosario Paone, Università di Napoli Federico II

The IsMEO Missione di Restauro in Esfahan has directed the restoration works in some of the most important monuments of the town and of two monuments in the neighbourhood. The general programs were organized by the highest authorities of Iranian Sazman Hefazat and of IsMEO, whereas the projects of the single monument were continuously discussed and revised by the Italian experts in collaboration with the Iranian regional director. All the works were executed by Iranian workers and technicians under the direction of the Italian architects and restorers. Only the documentation work was carried out by the Italian experts. In this general frame the "researches" were strictly connected with the needs of the work-places, and it is well known that the restorations works give always opportunity of new "discoveries". Can be useful nowadays, also to develop new researches, to try to remember and to examine the experiences done, on those far years, when some stuccos and plasters of particular importance have been discussed to choose the best conservation action.

Reconstruction of Missing Parts of the Stucco Decorations: Some Restoration Experiences

Hamed Sayyadshahri and Mohammad Mortazavi, University of Ferrara and Art University of Isfahan

Restoration of missing parts of an artwork is a challenging issue within the theoretical and ethical aspects of art conservation. Bringing back the original aesthetics of a historical object is always the choice of the conservator or any other interested person (or organization). Apart from giving a pleasant appearance, sometimes, it is necessary to restore a work of art to make it understandable and preserve its remaining parts. But, the use of the same kind of materials to recreate the missing parts increases the difficulty in the detection of the original/historical substance of an artwork over time. In particular, gypsum is still the most popular medium with which almost all stucco decorations are restored/reconstructed, despite new materials or methods which can be considered as alternatives. This talk, based on some experiences, will discuss the ethical/critical issues concerning reconstruction and completion of missing elements. A conservator-restorer has to overcome these matters to achieve reasonable treatment plans that may differ from one stucco ornament to another. The aesthetic aspects and dimensions of the missing parts of a stucco together with the technique with which the stucco is performed play an important role in making a decision on how the gypsum-based ornament should be either preserved or restored. This presentation focuses on some conservation treatments of stucco decorations from different historical periods in Iran. Two alternative methods, instead of using gypsum, to create a similar appearance of missing parts are discussed.

The Contemporary Challenge for Conservators to Preserve Creative Stuccoes from the Past: Molded stucco of the tomb of Sayyid Rukn al-Din and Sayyid Shams al-Din in Yazd

Yaser Hamzavi, MCHT Teheran

Molded stuccoes in the tomb of Sayyid Rukn al-Din and Sayyid Shams al-Din, in terms of construction technique, are among the most interesting architectural revetments of Iran in the 14th century A.D. One of the main problems of these decorations is their weak attachment to the background. There is a thin layer of about 2 mm gypsum plaster as a fine coat, which is applied on top of a clay-straw plaster ground. The straw in the scratch coat has also been heavily damaged by termites and destroyed in many parts. In this condition, there is a thin layer of fine coat, the back of which is empty in many parts, and on top of this fragile layer, there is molded stucco decoration, which is weakly attached to the background. Moreover, the surface color of the background is white and restoration materials might change this. These conditions make any conservation intervention very challenging. In this study, the strengthening the cohesion of molded stucco to their background, as well as consolidating the fine coat and scratch coat of architectural decoration will be discussed. Analytical studies such as FT-IR and wet-chemistry spot tests were applied to identify the historical materials of the decoration, in order to provide the best selection for the restoration materials. This task had to be done based on the existing conditions and historical materials to avoid any unnecessary changes. The special production technique of these stuccoes with their particular pathological conditions, in a large area, of approximately 200 square meters in Sayyid Rukn al-Din and 10 square meters in Sayyid Shams al-Din monument, led to a very creative method on their conservation and restoration project. This creative approach provides the highest percentage of preservation of the original materials, with the least amount of intervention in the architectural decorations of this monuments.

Archaeological Studies on Islamic Stucco Decorations in the Storage of National Museum of Iran

Majid Montazer Zohouri and Iman Aghajani, University of Teheran and University of Bamberg

The storage of NMI (National Museum of Iran) has numerous cultural materials which were almost found during archaeological fieldwork in various regions of Iran prior to the Islamic Revolution in 1979, such as Ray and Nayšāpūr. These archaeological finds include small fragments and a full-sized panels of carved stucco as well as wall paintings. Despite the significance of these materials for the history of Iranian architecture, till now no studies have been carried out on them.

The proposed study aims to fill this gap in our knowledge about these unique finds. The first goal of this research is particularly focused on a comprehensive documentation of the archaeological finds in this storage. Following the documentation, extensive research has been performed on the motifs of these stucco finds. This investigation helps us to categorize different types of these cultural materials. Such classification has been chosen according to its place of origin, place of decoration (dado, vaulting, squinch, etc.), motifs (floral, geometric, figural, and epigraphy) and technical peculiarity. Furthermore, a stylistic comparison is also executed on stucco finds in the storage of NMI and another defined stucco decorations from different parts of Iran. In conclusion, the results of this analytical study not only enable us to date some of these fragments, but also lead us to achieve a greater level of knowledge of buildings decoration in the early Islamic period.



Exterior of the Abd al-Samad complex, Natanz, Iran (Ana Marija Grbanovic)