

Daily News

4th issue, August 12, 2003

Workshop on

Combinatorics, Linear Algebra and Graph Coloring



- ∞ We hope that the attached schedule is the final version. Please note the changes for the three remaining days:
1. Tuesday August 12, 12:30-1:30 pm. E. Mahmoodian will speak and lunch will be at 1:30 pm.
 2. Wednesday August 13, 10:00-10:30 am H. Hajiabolhassan will speak and A. Toni will speak from 12:30 to 1:00 pm.
 3. Thursday August 14, 10:00-10:30 am H. Bidkhorri & N. Nosrati will speak. Peter Cameron's talk will be from 11:00 am to 12:00 pm and Richard Brualdi's talk will be from 12:00 pm to 1:00 pm.
- ∞ Ms. Maryam Haghighi, a student at Tehran University, correctly solved the Quiz in the 3rd issue. We expected that the participants would spend time searching the net for the middle names of the speakers but Ms. Haghighi took the direct approach and just asked our speakers for their middle names. Clearly she had the fastest and the most reliable algorithm. Her prize was a picture with the keynote speakers which you see in this issue.



Ms. Haghighi's prize



- ∞ **Mr. Arash Noorghorbani, Tehran University Masters student and an IPM affiliate, submitted a solution to the Open Problem from the first newsletter. As a corollary he also proved the conjecture from the second newsletter. Even though the referee reports some errors (e.g., L. Bruce Richmond a Cameron collaborator was confused with R. Bruce Richter a Thomassen collaborator) it seems that the errors are fixable and hence we declare the problem solved.**



Charles Johnson & Arash Noorghorbani

The task was to find the smallest connected collaboration graph that included our six keynote speakers. As a first step Mr. Noorghorbani attempted to locate every mathematician who had collaborated with two or more of our speakers. His list is

$C = \{N. \text{ Alon}, L. \text{ Babai}, A. \text{ Brouwer}, P. \text{ Erdos}, F. \text{ Harary}, J. \text{ van Lint}, M. \text{ Newman}, V. \text{ Pless}, J. \text{ Schoenheit}, J. \text{ Seidel}\}$

He has an argument why you do not need to consider anyone else and then he proves that you need at least 3 of the above to get a connected collaboration graph. There are many solutions. Some examples are:

$\{\text{Erdos}, \text{van Lint}, \text{Schonheim}\}, \{\text{Erdos}, \text{Seidel}, \text{Newman}\}, \{\text{Brouwer}, \text{Babai}, \text{Newman}\}, \{\text{van Lint}, \text{Brouwer}, \text{Newman}\}, \text{etc.}$

He also has a proof that for every solution set you can replace one of the mathematicians with J. van Lint and still get a solution thereby proving the Conjecture (One of the lemmas that he needs is that if a solution set includes Schonheim then it has to include Erdos as well).

His prize will be announced in a future newsletter but his own request is a scholarship for graduate study at Stanford!

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M. Rahpeyma



M. Hossein-zadeh giv



A. Rad



N. Ramezani



T. Parsa



A. Eslami



N. Barati



M. Ashteyani



Mashayekh



A Brief Note on Persian Classical Music History

Persian Classical Music dates back to the fifth century B.C. The Achaemenid Empire (550-331 BC) used music in prayer, royal festivities, national ceremonies, and war. At the time of Sassanid dynasty (100 B.C-630 AD), the music reached its culmination with the royal ensemble performing songs by Barbad and Nakisa (the two renowned court musicians) in large groups. Barbad is famous for his system of seven royal modes (Khosravany), thirty derivative modes (Lahn), and three hundred sixties melodies (Dastan).

In the next millennium or so, the music comes under pressure from the orthodox religious circles and loses its liveliness. During this long period, the theoretical aspects of Persian music continue to flourish while the practical parts weaken considerably.

Arab invasion (643-750 AD) was a prime cause of the suppression of musical activities.

However, at the time of the Abbasid dynasty (750-1258 AD) one can witness a revival of the court music. Iranian musicians once again gained importance during this period. A prominent musician-scholar Abu Nasr Farabi (890-980 AD) was able to publish his celebrated book *Kitab-e Musiqi Al-Kabir*. His book proved to be pivotal in the Islamic world, laying down the foundation for the music tradition in much of the works of the later centuries. Other Iranian scholars such as Abu Ali Sina (1000-1058 AD) and Safiaddin Ormavi (dead in 1286 AD) launched the twelve modal systems with six melodies, which are more or less prevalent in modern time.

The socio-political dominance of the hard-line clerics for the next few centuries thwarted music pursuit. Only religious music was allowed either as a part of reciting of the Quran or other festivities. Music became associated with the religion and was an integrated part of the rituals such as Taazeehe (religious musical theatre). However, the Safavid kings (1500-1672), themselves resolute Shiites, patronized the arts especially music that was welcomed at the royal court.

Much of the present Persian music has originated from the time of Qajar dynasty. Our collective consciousness in terms of practical music as opposed to theory starts in this period. In fact, whatever we know today originates from the musicians of this time. Mirza Abdoloh (1843-1917 AD) was the living memory of the 3000 years of the musical heritage. His teachings have become the pinnacle of much of the music literature in modern time. He was a virtuoso artist who taught the next generations the repertory of the Persian music. He passed the long and extensive oral tradition of music to his students while allowing them to put in writings much of his vast and invaluable recollection from the past. He was an excellent tar and the setar player. (add footnote).

The Qajar era is unique in a sense that musicians played at the royal court and private parties. Majlesi (private party) music is the most common type of music during this period. Some instruments such as tar and setar were introduced and others such as oud (lute) robab (a string melodic instrument like violin but played on the ground like cello), harp, and Qanun (a type of dulcimer with metallic picks played with fingers) were abandoned. Prominent musicians such as Agha-Hossein Gholi (1853-1916 AD) and his reputed student Darivish Khan (1872-1926 AD) belong to this period as are Aref and Sheyda the two musicians famous for their tasnifs (sort of madrigals).

Nasser-Aldin Shah (reigned 1848-1896 AD) of Qajar visited Europe in the mid 19th century and tried to copy the Western style theaters and opera houses in Tehran, the capital city of Iran. He founded the Takieh-e-Dolat (prototype of a musical house) in which musicians and actors could present their artistic works. Many princes and princesses were engaged in musical activities either by getting themselves music trainings or supporting musicians. Tar became the most prestigious instrument in a sense that in almost every noble family one person could play it.

Pahlavi era (1906-1979) was the turning point in Persian music. Many musical schools and academies were established during Reza Shah and his son Mohammad Reza Shah. The founding of national radio and television stations also played a crucial role in disseminating Persian music to the remotest corners of the country. Iran benefited from the Western educational system and many students graduated from colleges and universities including music schools. These musicians could, in turn, form various ensembles and musical groups. Female vocalists were able to sing in public and a large number of artistic works were introduced during this period.

Unfortunately, rapid and false modernization towards the end of the Pahlavi era tainted, to a certain degree, the Persian classical music. The mainstream in the society turned into imported pop music as radio and television stations (both public) paid more attention to such music and at the expense of the Persian classical music. The academia became the centers for training of the Western classical music. Iranian musicians suffered a lot and many of them found refuge in their homes.

In 1979, the Islamic revolution brought a complete halt to the musical activity. Ibn-e-Khaldoon (700-770 AD?), the Arabic scholar and philosopher, states that music is among the first categories to be perished in socio-political upheavals. Due to the socio-political displacement, the revolutionary regime only permitted revolutionary songs as the other musical forms were banned. Many musicians either had to leave the country or became locked up in their houses. Nonetheless, the Islamic regime soon broke ties with the traditional Shiite clerics- for the first time since the advent of Islam in Iran - lifting the ban on the trade of musical instruments.

Accordingly, it was allowed to buy and sell musical instruments. Such a heuristic act let musical activities to once again flourish in Iran. Moreover, as pop music was considered blasphemous and disrespectful, the young generation turned into the Persian classical music. Many religious families allowed their kids to attend music schools while stores were filled with musical instruments. Today, one can see young boys and girls freely carrying musical instruments in the streets of every city in Iran. Moreover, the introduction of computer, paved the way for writing and publishing the repertory of the Persian music.



Forms.

There exist six different types of forms in the Persian Classical music. These are (1) Pish-Daramad, (2) Avaz, (3) Char-Mezrab, (4) Qat-e-Zarbi, (5) Tasnif, and (6) Reng.

(1) Pish-Daramad is analogous to the overture. It is generally played at the beginning of each piece and is mostly in 2/4 measure. Pish-Daramad is a composed piece and sometimes it covers the whole Dastgah with various Gushehs. Pish-daramad is fairly recent and dates back to the mid-19th early 20th century. Davish-Khan is the first musician advocating the Pish-Daramad.

(2) Avaz is taken from the Radif. It starts with the starting Gusheh called Daramad (opening). Daramad is either played by a musician or a vocalist sings it based on poems in the forms of Ghazal or other classical poetic structures. Although Avaz is a non-metric piece, it has an intrinsic cadence based on the rhythm of the poetry chosen. The musician or vocalist is free to improvise around the structure of the Gusheh. However, some Gushehs, e.g., Char-Pareh (four-pieces) are strictly linked to the poetic form that makes improvisation virtually impossible. Therefore, one may conceive a Gusheh as a framework which serves as a blueprint for the musician. The sequence of Gushehs was of extreme importance among the classicists. Nonetheless, today musicians to large extent disregard such a sequence.

(3) Char-Mezrab is a rhythmic piece which is played before or in the middle of an Avaz. The tempo is usually in 6/8 measure. The purpose of Char-Mezrab is to break the cycles of non-metric Gushehs which are sometimes monotonous and tiresome for non-trained ears. Char-Mezrab is generally a non-written piece and is based solely on improvisation. Char-Mezrab is a short piece but sometimes the taste of a musician combined with receptiveness of the audience and the ecstasy generated by the inherent dynamics of the piece makes a Char-Mezrab longer than what is generally perceived. Char-Mezrab is played by one or two musicians accompanied by percussion.

(4) Qat-e-Zarbi is a rhythmical piece that could be a substitute for a Char-Mezrab. However, unlike a Char-Mezrab, Qat-e-Zarbi could be a composed piece. It is in either $\frac{3}{4}$ or $\frac{6}{8}$ measures which could be played either by one or two musicians or the whole ensemble.

(5) Tasnif is a written song with lyrics that is chanted by a vocalist. It is similar to the classical madrigal, albeit in much simpler form. It is entirely melodic in structure and extremely romantic in tone. Tasnif is the most common type of music. Since it uses poetry, non-musically trained ears can communicate and enjoy from Tasnif. In other words, Tasnif serves as an interpretation of musical form in language. It translates the abstract and at times incomprehensible music into words. As an illustration, suppose there are 1000 people in a concert hall. If the ensemble plays an instrumental music, at the end of the concert we may have 1000 different interpretations of the piece. On the other hand, if there is a singer singing with the orchestra in that concert hall obviously there would be only one interpretation. This is what a Tasnif does, it decodes a musical piece.

(6) Reng is a dance song. It is a written piece mostly in a 6/8 measure. From the unknown past, there have been some Rengs in the Persian classical music. Rengs such as Shar-Ashub in the sacle of Shur, Farah in Homayoon, and Harabi in Mahour are among the most illustrious dance songs in the musical Radif. A Reng is usually played at the end of a musical event and by the entire group. It may be compared as a finale in the Western music.

IV: Musical Overture.

Persian music is deeply spiritual in nature. It is hardly narrative or descriptive. It is closely related with the long and rich tradition of poetry in Iran. Love is the main theme of the Persian literature and culture. However, the beloved is mysterious and unknown. It could be the love for the God, man, nature, and society or for ultimate truth and beauty. Life is tragic and the Persian art and music seek to find answers to such questions as the *raison d'être* of existence.

Against such a background, one can find the essence of the Persian music. At the first glance, music appears to be forlorn and melancholic. Performance on the basis of a long and monotonous non-metric Avaz or a Gusheh may astound unfamiliar audience. The explicit rhythm rampant in modern popular music is missing in the Persian classical music. However, those familiar with the implicit rhythms inherent in Persian music may appreciate and enjoy it to the outmost. The built-in cadence manifestly makes one dance deep inside. A music lover can discern such a hidden rhythm in the serenity of one's soul.

No wonder that the Persian music is extremely individualistic. The performer and the listener are bond together with an entwined chemistry. The performer improvises and the listener immediately connects with the improvised piece. There is a dialogue between the two. One plays and the other absorbs like a tree from its roots. The listener, himself a music lover, simultaneously acts as a plain audience as well as an elaborate art critique. Intimacy plays a crucial role in such a pious and honest exchange.

The performer creates and performs spontaneously. He cannot afford to make mistakes. There is no space for the rough draft. Everything is in its final polished form. Thus, child prodigy is unknown in the Persian music. A musician needs a certain degree of maturity in both creativity and technicality. There are occasions in which a musician creates a passage, a musical phrase, and the lack of required skill prevents him from correctly performing it.

Ornamentation is of prime importance. Unlike the blocks of harmony in the Western classical music, Persian music is of miniature type with much detailed articulations and grace notes. Music is generally written in low registers. Musical instruments are more or less in the same range. The ensemble plays in a unison fashion and orchestration is typically limited. However, rhythms in the composed and written pieces, especially in more recent time, give the necessary color and vigor to the music.



IRAN CARPET'S HISTORY

The oldest PERSIAN hand woven carpet in the world was discovered by Rudenko ,the Russian archaeologist , in 1949 at the perisarc reign and called perisarc carpet.

At 1953, Rudenko published a book and explained in details about this carpet and clearly, he called perisarc carpet the oldest carpet in all over the world.

"It is hard to specify that this carpet belongs to Medians territory or Parthian's, but it belongs to Fourth or beginning fifth century B.C.

Considering the design of perisarc carpet; the horse riders have no saddles on their horses but there are carpets instead, and this is the specification of ASSYRIANS, However, the way of twisting their horses' tails with its variations in details are similar to Persepolis BAS-RELIEVOS." he mentioned.



At the domination of Mongolian dynasty in IRAN at 13th and 14th century A.D., Iranian-weaving carpets had a brilliant period.

The Iranian weaving carpets improvement era was coincided by the governorship of GHAZAN KHAN (1295 - 1307A.D.)

The Iranian weaving carpets' Renaissance took place at the governorship of SHAH TAHMASP (1524-1587) and continued to SHAH ABBAS, THE GREAT (1587-1629). Now there are more than 300 pieces of carpets and rugs in International museums across the world.

At this period of time, Carpets and rugs studios established at the adjacent of the palaces and in some other cities Like Tabriz, Isfahan, Kashan, Mashad, Kerman, Joushghan, Yazd , Astar Abad, Harat, Shirvan, Qareh Bagh, Gilan and others.

At this era, Medallion design introduced. But after the occupation of IRAN by Afghan forces (1722-1730) the carpet industry degraded.

At 19th century the unique Iranian carpets, which were wove at Tabriz became so popular.

European countries sent some delegations to IRAN in order to buy some and gathering this one of a kind treasury and then they send it to Constantinople (Istanbul) which was the main carpet's market.

At 1883, British companies (Ziegler), then American And German companies established some studios in Tabriz, Arak, Kerman. this process stopped by World War I at 1914.