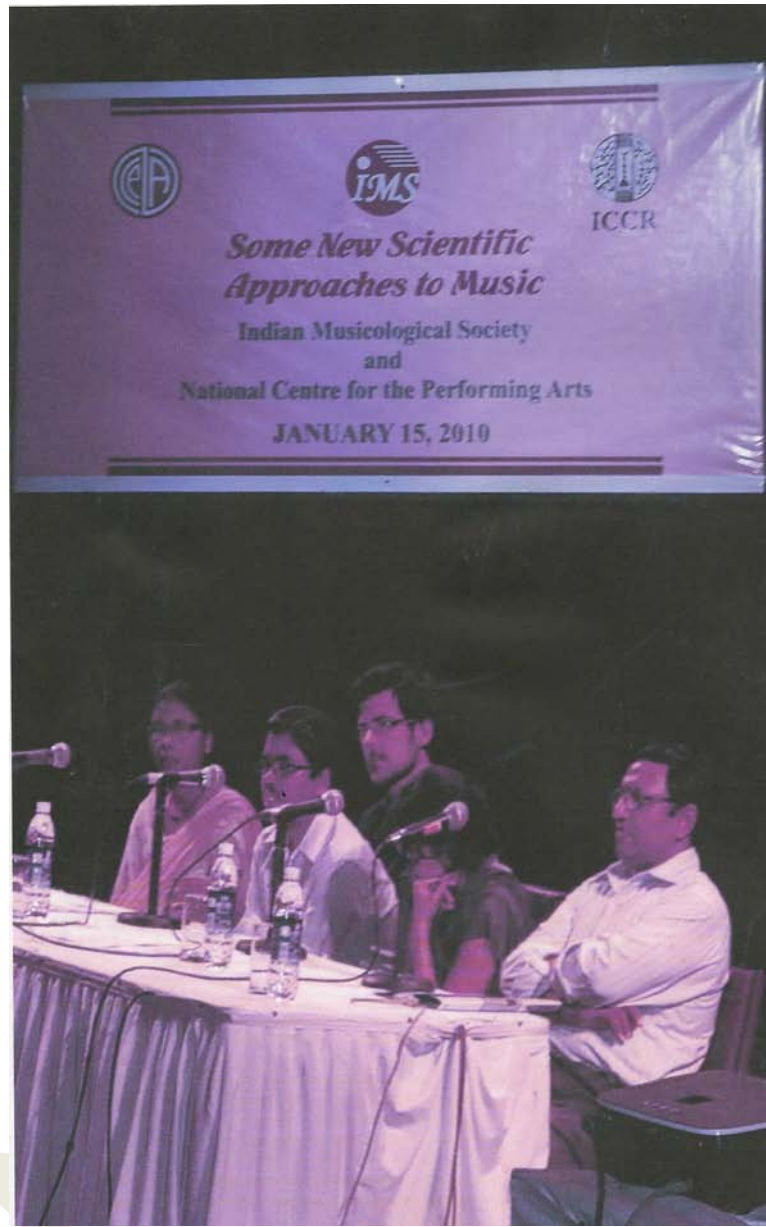


2. Some photographs of interactions with music personalities:
(during personal interaction & during the Seminar at NCPA)



(The author along with his Guide Dr Mahisuri interacting with Padma Bhushan Prof.Dr (Mrs) N.Rajam)



(Seminar organised by Indian Musiological Society)



Name: P.K.Mittal

Email: pkm460@yahoo.in

EXISTENCE OF INVERSE RELATIONSHIPS IN RAGA SCALES OF HINDUSTANI MUSIC

INVERTED MELODIC & HARMONIC PATTERNS OF CONSONANCE & DISSONANCE (A CASE STUDY)

- In any musical scale, the groups of swaras are connected with the Prime Swara and to each other with a certain ordered degree of consonance and dissonance.
- The degree/level of consonance is the same for the ascending and descending harmonics of swaras i.e. level of consonance of the Prime Swara with its harmonics 2:3:4 etc. is the same as it is with its harmonics 1/2:1/3:1/4.
- There are two identical group of swaras with an identical level of consonance and dissonance with the prime swara, being the mirror image of each other e.g. the Consonance of Sa (1) with Pa (3/2) & Ma [1/(3/2) i.e. (2/3)] is the same. i.e. Pa is mirror image of Ma. Inverses of other swaras similarly are given below.

Mirror images i.e. inverse relationships between swaras (Sa-The Prime Swara)

Swara	Mirror Image/Inverse
Major 2 nd (Re/ 9/8)	Minor 7 th (Ni/8/9 or 16/9*)
Major 3 rd (Ga/5/4)	Minor 6 th (Dha) (4/5 or 8/5)
Major 4 th (Ma/4/3)	Major 5 th (Pa/3/4 or 3/2)
Major 5 th (Pa/3/2)	Major 4 th (Ma/2/3 or 4/3)
Major 6 th (Dha/5/3)	Minor 3 rd (Ga/3/5 or 6/5)
Major 7 th (Ni/15/8)	Minor 2 nd (Re/8/15 or 16/15)
Augmented 4 th (Ma/45/32)	Augmented 4 th (Ma/32/45 or 64/45)

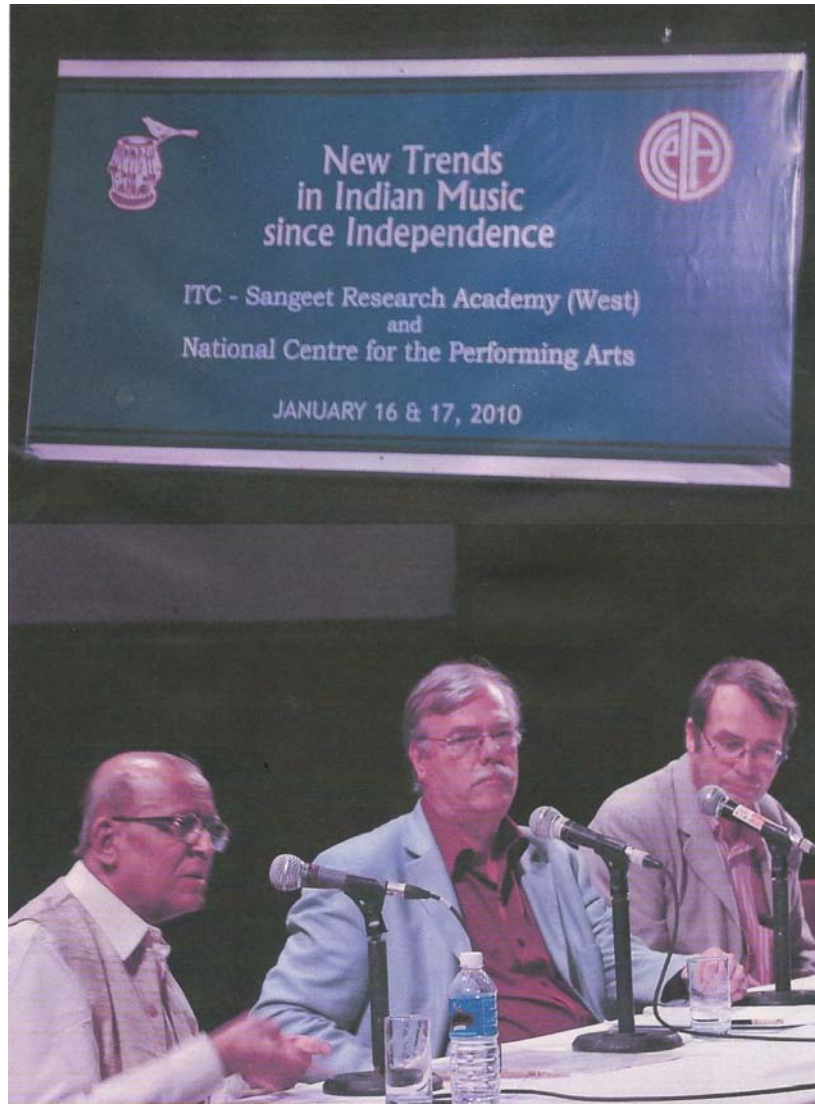
* Frequency of Swaras of Madhya Saptak is double the frequency of Swaras of Mandra Saptak.

Inverse relationships between Ragas /Thaats/Chords

System of Music	Raga/That/Chord	Inverse Raga/That/Chord
Hindustani Music	Raga Bhupali (S R G P D S')	Malkaus (S G M D N S)
	Durga (S R M P D S)	Dhani (S G M P N S)
	That Bilawal (S R G M P D N S')	That Bhairavi (S R G M P D N S')
Carnatic Music	Hindolam (S G2 M1 D1 N2 S)	Mohana (S R2 G3 P D2 S)
	Hari kamboji (SR2G3M1PD2N2S)	Nata Bhairavi (SR2G2M1PD1N2S)
	Hanumantodi (S R1 G2 M1 P D1 N2 S)	Dhir Shankarbarhanum (S R2 G3 M1 P D2 N3 S)
Western Music	Major Chord (S G P S') (Ratios: 1, 5/4, 6/5, 2)	Minor Chord (S G P S') (Ratios: 1, 6/5, 5/4, 2)

CONCLUSIONS:

- 1) INVERSE RELATIONSHIPS EXIST BETWEEN SWARAS & RAGA STRUCTURES IN H.MUSIC.
- 2) SIMILAR RELATIONSHIPS HAVE BEEN OBSERVED IN OTHER FORMS OF MUSIC i.e. CARNATIC AND WESTERN MUSIC AS SHOWN IN THE TABLE ABOVE.
- 3) INVERSE RAGAS EXIST. THEY NEED TO FLESHED OUT & PERSONIFIED.



(Seminar organised by Sangeet Research Academy)



from left to right Dr Ashok Ranade(India), Prof Wim Van Meer (Netherlands),
Prof Richards Widdess(U.K)



(The author and his Guide Dr Rakesh J. mahisuri displaying the poster paper to the audience)



(The author explaining the concept of Inverse Raaga to one of the participants from Delhi)



(Dr R.G.Kelkar of FPA,MSU of Baroda interacting with other participants of the Seminar)



(Dr Swarna Lata Rao of NCPA ineracting with the participants)



(Pt Shiv Kumar Sharma)



(Ud Zakir Hussain)



Madam Shubha Mudgal(Hindustani Music)



Madam Anitha Sairam(Carnatic)



(The Author)