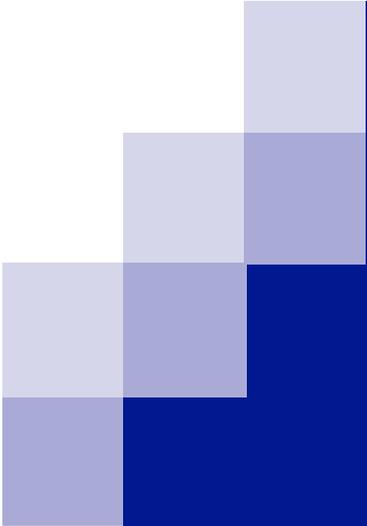


Syed Twareque Ali – in Memoriam





Syed Twareque Ali – in Memoriam

Gerald A. Goldin
Rutgers University

Group 31 – Rio de Janeiro

June 2016



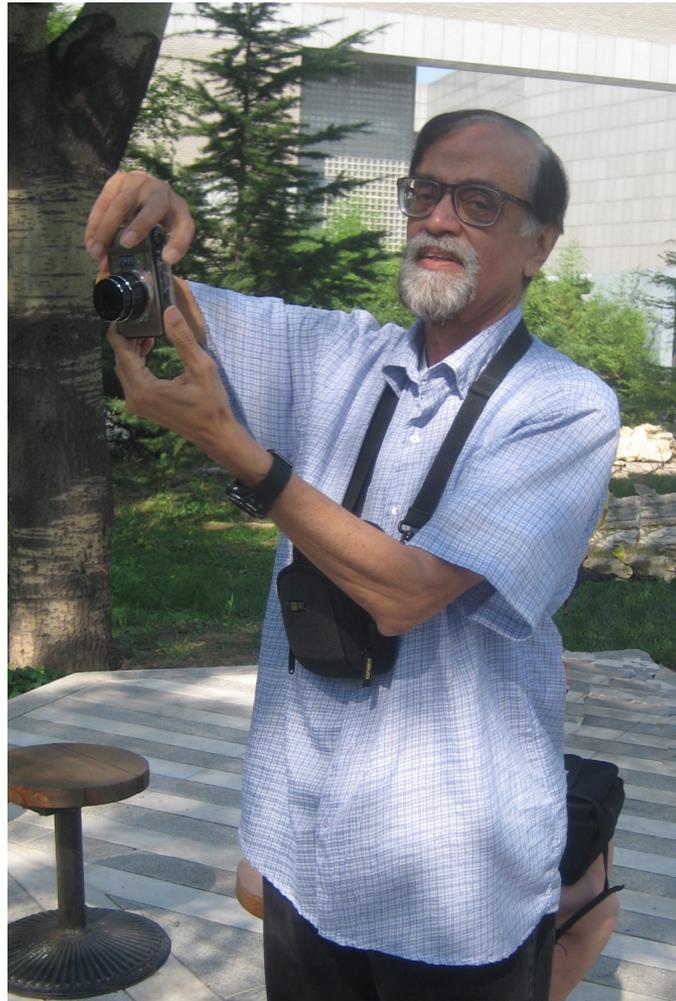
... with profound acknowledgments to Twareque's family, friends, colleagues, and students ...

Sources ...

J.-P. Antoine, J.-P. Gazeau, G. Goldin, J. Harnad, M. Ismail, A. Krasowska, R. Deptula & R. R. Ramos (2016). In memoriam, S. Twareque Ali (1942 - 2016). *Le Bulletin, Centre de Recherches Mathématiques* **22** (1), 9-12.

F. Schroeck, J.-P. Antoine, G. Goldin & R. Benaduci (2016). Syed Twareque Ali. *Journal of Geometry and Symmetry in Physics* (in press).

Thank you also to the organizers of Group 31, particularly J.-P. Gazeau, for this opportunity to celebrate Twareque's life and achievements.



... at Group 29, Tianjin, China, August 24, 2012

A brief biography ...

Born (1942), a subject of the British Empire.

Subsequently lived in pre-independence India, became a citizen of Pakistan (1947) and Bangladesh (1971) – all without moving from home. Later, a citizen of Canada.

M. Sc. (1966) in Dhaka, (now) Bangladesh.

Ph. D. (1973) Rochester, USA. He studied with Gérard Emch, who remained a great influence in his life.

Research positions: ICTP (Trieste); Univ. of Toronto; Univ. of Prince Edward Island; and T.U. Clausthal, Germany.

Biography (continued) ...

Assistant Professor (1981), Associate Prof. (1983), and then Full Professor (1990), Dept. of Mathematics and Statistics, Concordia University, Montreal.

Scientific achievements recognized world-wide, most notably in the areas of ...

approaches to and methods of quantization,

coherent states and symmetries,

wavelet analysis,

connections and relationships among these topics.

Biography (continued) ...

Twareque with his wife Fauzia at Group-29 (2012), where he was honored on the occasion of his 70th birthday.

Their son Nabeel specializes in pediatric medicine in Montreal.



Biography (continued) ...

Twareque was a generous contributor of time and organizational effort to, and reliable participant in, many international scientific conference series, most notably helping to bring to prominence ...

Workshop on Geometric Methods in Physics (WGMP),
Białowieża, Poland (1991 - 2015), org. by Anatol Odziejewicz

University of Havana International Workshops (1998 - 2015),
org. by Reinaldo Rodriguez Ramos

Contemporary Problems in Mathematical Physics (Copromaph),
Cotonou, Benin, org. by M. Norbert Hounkonnou

He was also, of course, a member of the Standing
Committee of the ICGTMP.

Group-27, Yerevan, Armenia (2008)



... with H.-D. Doebner and J.-P. Gazeau

Twareque with Norbert Hounkonnou in Bialowieza (2013).



EQualS meeting in Malaysia (2015)



Twarque died unexpectedly January 24, 2016 in Malaysia, after participating in EqualS8: the Expository Quantum Lecture Series.

Some scientific highlights

(please forgive the omissions)

- measurement problems in phase space
- stochastic, Galilean, Einsteinian quantum mechanics
- joint work with E. Prugovecki, G. Emch, H.-D. Doebner
 - S. T. Ali (1985), Stochastic localization, quantum mechanics on phase space and quantum space-time. *La Rivista del Nuovo Cimento* **8** (11), 1.
 - S. T. Ali, J. A. Brooke, P. Busch, R. Gagnon, and F. Schroeck (1988), Current conservation as a geometric property of space-time. *Canadian J Phys* 66 (3), 238-44
- coherent states for the Galilei and Poincaré groups
- collaboration with S. De Bièvre

Scientific highlights (continued) ...

- extensive, long-term (and famous) collaboration with J.-P. Antoine and J.-P. Gazeau
 - square integrable group representations
 - continuous frames in Hilbert space
 - coherent states
 - wavelets

S. T. Ali, J.-P. Antoine, & J.-P. Gazeau (1991), Square integrability of group representations on homogeneous spaces I. Reproducing triples and frames. *Ann. Inst. H. Poincaré* 55, 829-856.

S. T. Ali, J.-P. Antoine, & J.-P. Gazeau (1993), Continuous frames in Hilbert space. *Annals of Physics* **222**, 1-37; Relativistic quantum frames, *Ann. of Phys.* **222**, 38-88.

Scientific highlights (continued) ...

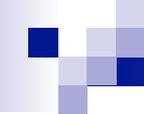
S. T. Ali, J.-P. Antoine, J.-P. Gazeau, & U.-A. Müller (1995), Coherent states and their generalizations: A mathematical overview. *Reviews in Math. Phys.* **7**, 1013-1104.

S. T. Ali, J.-P. Antoine, & J.-P. Gazeau (2000, 2nd edn. 2014), *Coherent States, Wavelets and their Generalizations*. New York: Springer (and references therein).

- quantization methods and their meaning

S. T. Ali and M. Engliš (2005), Quantization Methods: A Guide for Physicists and Analysts. *Rev. Math. Phys.* **17**, 391-490.

S. T. Ali, F. Bagarello, & J.-P. Gazeau (2013), Quantizations from reproducing kernel spaces. *Ann. Phys.* **332**, 127-142.



Twareque Ali's extraordinary mind and heart ...

A dedicated and committed teacher ...

“If anything in our lives became too complicated it was a clear sign we needed to talk to Dr. Ali. Every meeting with him provided a big dose of encouragement and new energy, never accompanied with any criticism or judgment.” – Anna Krasowska and Renata Deptula

A deep thinker, who sought transcendent beauty. The truths of science, the elegance of mathematics in the quantum domain, were part of the ever-unattainable beauty for which he (and all of us) yearn.

Twareque in thought, Białowieża (July 2014)



Some personal reminiscences ...

He gave of himself unstintingly, and did everything with modesty and humor,

... believed passionately in peace, international cooperation, and assisting the less privileged and less fortunate (often anonymously),

... loved poetry, and quoted extensive passages from memory in Bengali, Italian, German, and English (especially the Romantics). He collected various editions of his favorite, Omar Khayyam's *Rubaiyat*.

Twareque's laughter restored balance and joy in times of sadness, to me and to many others.



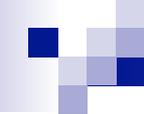
He knew deep sadness and nostalgia, yet maintained a vibrant optimism coming from profound wisdom.

“What though the radiance which was once so bright
Be now for ever taken from my sight,
Though nothing can bring back the hour
Of splendour in the grass, of glory in the flower;
We will grieve not, rather find
Strength in what remains behind;

...

In the faith that looks through death,
In years that bring the philosophic mind.”

-- William Wordsworth



But his eyes would twinkle, and he never took himself too seriously. He loved to tell some rather silly jokes ...

Notice that Twareque carries a camera in many of the pictures here ... observing, reflecting, trying to capture the meaning in all that he took in.

There are some old stories and traditions ...

Often one closes a memorial with a picture of a sunset, marking the ending of the day. My choices for Twareque are different.



Not a sunset, but a reflection of heaven in Białowieża Park.



Thank you.