The MG16 official poster and the MG16 individual and institutional awards

The Sixteenth Marcel Grossmann Meeting (MG16) is a very special one in many respects: it will take place during a pandemic and in spite of the many difficulties, we have decided not to postpone it but to organize it as a virtual meeting.

As described on the MG series webpage, these meetings started in 1975 with the first meeting at the International Centre for Theoretical Physics (ICTP) in Trieste (Italy) that I organized with Nobel Prize winner Abdus Salam. A second meeting followed in 1979, with a significantly larger participation including Nobel Laurate Cheng Ning Yang and a Chinese delegation led by Chuo Pei Yuan (see Fig. 1), including Fang Li-Zhi who had accompanied me during my entire first visit to China in 1979. The first truly international MG meeting followed in 1982 in Shanghai (China):this represented an especially important step forward both for the meeting and for China. A multi-millennia *"motto"* in China, which was then proclaimed on banners everywhere, read *"Friends from all over the world are welcomed"*. We were soon at an impasse over the participation of scientists from Israel, since no diplomatic relations existed between China and Israel at that time and the Israeli scientists were not to be allowed to attend the meeting. A long negotiation began. The boundary conditions were clearly set by Steven Weinberg, a member of the present MG16 IOC: no MG meetings on Einstein's theory of general relativity could occur without the participation of Israeli scientists. The intervention of Yuval Ne'emann, also a member of the MG IOC then as well as the Minister of Science of Israel (see Fig.2), proposed a compromise that would admit at least one Israeli scientist. I went to Beijing alone, meeting every morning for a week with 12 Chinese representatives led by Chuo Pei Yuan going over all possible options. I stayed in an isolated villa not far from Tiananmen Square, accompanied by the 3 volumes of Matteo Ricci (RI MA TO) to keep me company. No solution was in sight the entire week. At the last moment, just before my departure, an agreement was finally reached allowingtwo Israeli scientists into China. The historic compromise would admit Gerard Tauber and Tsvi Piran into China using a special ICRA travel document I had proposed for them to be able to participate in the meeting, accepted by the Chinese Ambassador in Rome. This modified the thousand year Chinese *"motto"* to read *"Scientists from all over the world are welcomed"*. The event was extremely beneficial for China and signaled the truly international nature of the MG meetings. I kept on meeting Tauber in the years which followed (see Fig. 3). Soon after, Yuval Ne'emann visited China. The development of bilateral relations, including military cooperation and economical tights, grow exponentially until the establishment of normal diplomatic relations between Israel and China in 1992.

Given their key role played in the foundations of the MG meetings, I am very happy to propose on behalf of the MG16 IOC, two special Marcel Grossmann Individual Awards: one to Steven Weinberg for *"for unwavering support for the MG meetings since their inception, a true companion in the search for the deeper meaning of Einstein's great theory"* and another one to Tsvi Piran, *"for extending Relativistic Astrophysics across international frontiers, a true companion in the search for the deeper meaning of Einstein's great theory"*, in the words of John A. Wheeler'sphoto dedication to myself (see Fig. 4).

A special event took place at ICRA on April 30, 1999. I had invited Gerard 't Hooft to Rome to discuss a boundary condition for a quantum field on the black hole horizon, a topic I had discussed in a previous article *"Black-hole evaporation in the Klein-Sauter-Heisenberg-Euler formalism"* with Thibault Damour (Phys. Rev. D 14, 332, 1976), but which needed to be examined in more detail and I had planned to direct Gerard's attention to some specific aspects of this problem. Because we have traditionally been very attentive in our spending of ICRA travel funds, we had offered Gerard to come to Rome on a reduced fare weekend ticket arriving Friday and departing Monday. We had a great relaxing weekend together following his seminar, which among other things allowed Gerard to sign the wall in our ICRA Room (see Fig. 5) , and during this splendid Rome spring weekend he also was able to find a missing factor of 2 in a formula in my 1971paper with Demetri Christodoulouon the black hole mass formula. The following October, Gerard received the Nobel prize, which meant that we could no longer get away with bringing him to Rome on a cheap ticket! Ever since Gerard has been in our MG IOC helping us with the preparation of the meetings. I am very happy to announce this MG16 Award to Gerard 't Hooft with the motivating phrase *"for his persistent devotion to the study of the quantum field theory boundary conditions at the black hole horizon"*.

The MG16 Institutional Award is jointly presented to three institutions:

1. The S.A. Lavochkin Association, which created the Navigator space platform, launched the SRG Orbital X-Ray Observatory to the second Lagrangian point of the Sun-Earth system at a distance of 1.5 million km from the Earth, and managed the observatory flight and the daily reception of its scientific data on Earth for 22 months, to be represented by its general designer Alexander Shirshakov.

2. The Max Planck Institute for Extraterrestrial Physics (MPE), which created the unique eROSITA X-ray telescope with grazing incidence optics and giant X-ray CCD arrays, built and successfully initiating operation in space under the guidance of the eRosita PI for many years Peter Predel, who will represent MPE.

3. The Space Research Institute (IKI) of the Russian Academy of Sciences, which formulated the main scientific objectives of the Orbital X-Ray Observatory, and created the Mikhail Pavlinsky ART-XC Telescope, sensitive to X-rays harder than the eRosita telescope can detect. The SRG Observatory was created, launched into orbit and operated by RosKosmos on behalf of the Russian Academy of Sciences, to be represented by its principal investigator Rashid Sunyaev.

"For the creation of the world's best X-ray map of the entire sky, for the discovery of millions of previously unknown accreting supermassive black holes at cosmological redshifts, for the detection of X-rays from tens of thousands of galaxy clusters, filled mainly with dark matter, and for permitting the detailed investigation of the growth of the large-scale structure of the universe during the era of dark energy dominance".

Remo Ruffini
Chairman of the IOC of MG meetings

Fig. 1 :Chuo Pei Yuan and Cheng Ning Yang at MG2 in Trieste, Italy (1979).

Fig. 2: From right to left: Chaim Weizmann, President of Israel; Yuval Ne'emann, Minister of Science of Israel; R. Ruffini.

Fig. 3: From right to left: Arrigo Finzi, Gerard Tauber, Remo Ruffini and Konrad Bleuler.

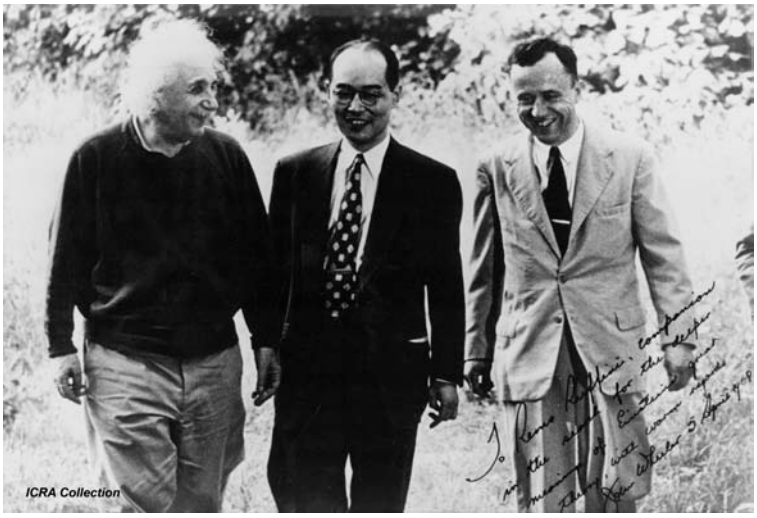

Fig. 4: Albert Einstein, Hideki Yukawa and John. A. Wheeler with a hand-written dedication to Remo Ruffini *"To Remo Ruffini, companion in the search for the deeper meaning of Einstein great theory. With warm regards, John Wheeler 5 April 1968"*.

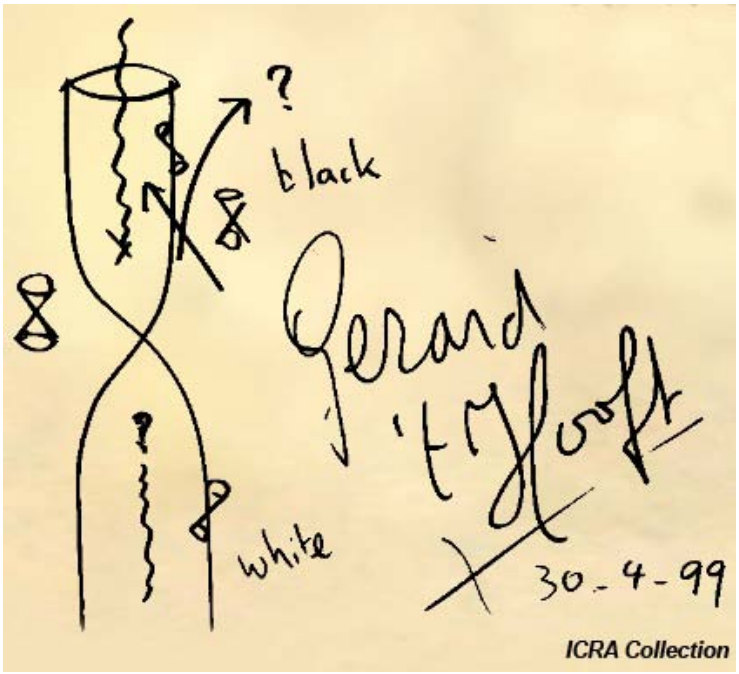

Fig. 5: The signature of Gerard 't Hooft on the wall of ICRA Room 301 (April 4, 1999).