

12th Young Researcher Meeting

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FOREWORD

The Young Researcher Meeting (YRM) is a conference aimed at students and young researchers conducting their scientific activities in various fields of modern Physics. The initiative originated in 2009 from the idea of a group of doctoral students at the University of Rome “Tor Vergata”, with the purpose of creating synergies between different branches of theoretical and experimental Physics, promoting interdisciplinary collaboration, and sharing techniques and methodologies. Since 2016, the event has been organized and promoted by the Italian non-profit cultural association International Physicists Network (IPN).

Over time, the YRM has gained increasing popularity and dissemination, becoming an annual event. Since its early editions, the event has been organized in various Italian cities, attracting numerous participants from Italy and abroad. The aim of the meeting is to offer young physicists the opportunity to present their activities through oral presentations and/or posters in a setting that combines the rigour of scientific conferences with a more informal atmosphere, providing a chance to establish national and international collaborations. Additionally, participants are given the opportunity to increase the visibility of their scientific results by publishing their work as conference proceedings.

After the restrictions due to the outbreak of COVID-19 pandemic, the 2023 edition reintroduced the original formula of the conference in person, within a stimulating and engaging context. The 12th YRM was held at the INAF – Astronomical Observatory of Rome, Monte Porzio Catone, on 2–4 October 2023. About 40 PhD students and young researchers from various universities and research institutes participated in the event. The oral sessions covered the following topics: High Energy Astrophysics, Extragalactic Astrophysics, Cosmology, Stellar Physics, Solar Physics and Exoplanets, Theoretical Physics, Condensed Matter, and Astronomical Instrumentation. There were 28 talks, in addition to two invited talks, by Prof. Paolo Ventura and Dr. Giovanni Romanelli. The program included also a *Lectio Magistralis* by Prof. Amedeo Balbi from the University of Rome “Tor Vergata”, titled “The Physics of Habitable Worlds”. Furthermore, similar to previous editions, participants could enjoy tasting local wines during the poster session, and dishes from the regional cuisine during the social dinner at a nearby restaurant. Participants were also offered a guided tour of the Observatory.

The present volume contains a selection of papers from oral contributions presented at the conference. The topics covered include High Energy Astrophysics, Extragalactic Astrophysics, Stellar Physics, Solar Physics and Astronomical Instrumentation.

ACKNOWLEDGEMENTS

The organizers of the 12th YRM express their gratitude to all participants for their valuable scientific contributions and to everyone who made the conference an enjoyable and pleasant event. They would also like to thank the invited speakers and Prof. Amedeo Balbi for his highly engaging seminar on a timely topic of modern astrophysics. The organizers are also thankful to Dr. Raffaele Cirone for the fascinating historical tour of the Monte Porzio Observatory. A special thanks goes to Director Dr. Lucio Angelo Antonelli and the entire staff of the INAF-Astronomical Observatory of Rome for hosting the event and providing assistance throughout. The organizers acknowledge the Istituto Nazionale di Astrofisica for its significant financial contribution, which made the event possible. They also acknowledge the financial support of Assing S.p.A. for funding the Best Poster Award.

