

Scientific Report – Conference “MODEST-25SPZ: Advanced Simulations and Modelling in Astrophysics”

At this meeting, a diverse group of around 30 researchers from all over the world gathered to discuss the latest advances in computational astrophysical research. Amongst the topics discussed were new advances in simulation hardware; discoveries in star cluster research; advanced simulations including multiple physical effects; planetary formation; and multiple stellar systems.

Many of the invited speakers were current or former collaborators, students, or mentors of prof. Simon Portegies Zwart. The exchange of ideas during the conference directly contributed to the advancement of research in the field of computational astrophysics and led to new collaborative initiatives.

Highlights included talks by prof. Makino on advances in simulation hardware, by prof. Gieles on modelling star clusters and by Dr. Pfalzner on the Solar system. All talks were followed by extensive discussion.

Final program:

Monday 19th (9:30-12:30): Modelling dense stellar systems

- Opening
- Simon's contributions to Star Clusters (Alison Sills)
- Mark Gieles
- Monday 19th (14:00-17:00): Modelling dense stellar systems (continued)
- Daniel Marín Pina
- Roberto Capuzzo Dolcetta

Monday 19th (17:00): Borrel (welcome drinks) Tuesday 20th (9:30-12:30): Multi-physics and multi-scale simulations

- Michiko Fujii
- Simon's contributions to multi-physics and multi-scale simulations (Steven Rieder)
- Christian Boily

Tuesday 20th (14:00-17:00): Stellar systems, binary and triple population synthesis

- Alessandro Trani
- Simon's contributions to stellar systems (Gijs Nelemans)
- Simon Goodwin

Wednesday 21st (9:30-13:00): Stellar systems, binary and triple population synthesis (continued)

- Michela Mapelli
- special talk: Junichiro Makino
- special talk: Ed van den Heuvel
- special talk: Piet Hut
- online talk: Peter Teuben

Wednesday 21st (15:00-17:00): social event (boat tour)

Wednesday 21st (18:30): dinner

- special talk: Simon Portegies Zwart

Thursday 22nd (9:30-12:30): Planetary systems, the Solar system and the Oort cloud

- Simon's contributions to planets (Santiago Torres)
- Susanne Pfalzner
- Sergio Gomes

Thursday 22nd (14:00-17:00): Planetary systems, the Solar system and the Oort cloud (continued)

- Discussion

Friday 23rd (9:30-12:30): High-performance computing

- Simon's contributions to High-performance computing (Derek Groen + Steven Rieder)
- Lourens Veen
- Derek Groen
- Closing