

**WG3 (gravity)**

**Summary**

**Trento, 2017**

# Working Group 3 overview

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**WG Leader:** Ian Jones (University of Southampton, UK)

- Topics:
- **Numerical modeling in binary inspiral**  
*leader:* Bruno Giacomazzo (University of Trento, Italy)
  - **Binary inspiral electromagnetic counterparts / ejecta**  
*leader:* Andreas Bauswein (Heidelberg Institute for TS, Germany)
  - **EoS influence on GW signal from inspiral**  
*leader:* Tanja Hinderer (Radboud University Nijmegen, Netherlands)
  - **GW emission from individual stars**  
*leader:* Leonardo Gualtieri (Sapienza Università di Roma, Italy)

Synergy agents:

- **Gravity - astro:** Valeria Ferrari (Sapienza Università di Roma, Italy)
- **Gravity - nuclear:** Micaela Oertel (LUTH Meudon, France)

# Activities: Schools

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- Gravitational topics well-covered at NewCompStar Schools:
- **2016:** *'NSs: gravitational physics theory and observations'*  
University of Coimbra, 5-9 Sept. 2016
  - focus was on gravitational physics
- **2017:** *'NSs: theory, observations, and GW emission'*  
University of Sofia, 11-15 Sept. 2017
  - Lectures on a range of gravitational aspects, e.g. numerical relativity, dynamics of binary NSs, NSs in alternative theories of gravity, ...

# Activities: meetings

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- WG3 personnel organized/co-organized two meetings
  - *‘Oscillations and instabilities’ + WG1,2,3 meeting*  
University of Southampton, UK, 13-14 Sept. 2016 [Ian Jones]
  - *‘Bridging nuclear and gravitational physics’*  
ECT\* Trento, Italy, 5-9 June 2017 [Andreas Bauswein]
- gravitational aspects well-represented at [annual NewCompStar](#) meeting
  - **talks/sessions** covered a wide **spectrum of activity** with gravity-related themes:  
*GW data analysis, astrophysical modeling, alternative theories of gravity, ...*
- Gravity component (talks, discussions) in other meetings
  - *‘The modern physics of compact stars and relativistic gravity’*  
Yerevan, Armenia, 18-22 Sept 2017
  - **[current event]** *‘New perspectives on NS interiors’*  
ECT\* Trento, Italy, 9-13 Oct. 2017

# Short-term scientific missions

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Many STSMs had a significant gravity component.

*some examples:*

**2017** • 2nd round:

- ‘**GWs** from isolated strange stars’
- ‘The role of the p-g instability during NS **binary inspiral**’

• 1st round:

- ‘Extracting information from **GW** data using MCMC techniques’
- ‘**Quasinormal modes** of NSs in massive scalar-tensor theories’

**2016** • 3rd round:

- ‘Optimization & Development of a HPC Pipeline to search for **GWs** from rotating NSs ...’