

Workshop of the Thematic Programme on  
“Mathematical Perspectives of Gravitation beyond the Vacuum Regime”

February 14 – 18, 2022

organized by

Håkan Andréasson (CUT, Gothenburg), David Fajman (U Vienna), Jérémie Joudioux (MPIGP, Potsdam), Todd Oliynyk (Monash U, Melbourne)

• Monday, February 14th, 2022

15:00 – 16:00 **Hans Ringström (KTH Stockholm)** – online

*A geometric framework for anisotropic big bang singularities and initial data on the singularity*

16:00 – 17:00 **Philippe LeFloch (Sorbonne U, Paris)** – online

*Some advances on self-gravitating massive fields: nonlinear stability, asymptotic decay, and singularities*

17:00 – 18:00 **Coffee Break**

18:00 – 19:00 **Igor Rodnianski (Princeton U)** – online

*Landau law and stability of 3D shocks*

19:00 – 20:00 **Robert Strain (UPenn, Philadelphia)** – online

*On the fully nonlinear 2D Peskin problem*

• Tuesday, February 15th, 2022

15:00 – 16:00 **Joachim Frenkler (U Bayreuth)** – online

*Self-consistent models for Spiral Galaxies - A new chapter in the discussion about Dark Matter*

16:00 – 17:00 **Sebastian Günther (U Bayreuth)**

*Collisionless equilibria in general relativity: stable configurations beyond the first binding energy maximum*

17:00 – 18:00 **Coffee Break**

18:00 – 19:00 **Jonathan Luk (Stanford U)** – online

*From vacuum to dust to Vlasov*

19:00 – 20:00 **Juhi Jang (U of Southern California, Los Angeles)** – online

*Newtonian self-similar gravitational collapse*

• Wednesday, February 16th, 2022

14:00 – 15:00 **Sohrab Shahshahani (UMass Amherst)** – online

*The hard phase fluid with free boundary in relativity*

15:00 – 16:00 **Mahir Hadžić (University College London)** – online

*Examples of naked singularities for the Einstein-Euler system*

16:00 – 17:00 **Jared Speck (Vanderbilt U, Nashville)** – online

*The Mathematical Theory of Shock Waves in Relativistic and Non-Relativistic Compressible Euler Flow*

17:00 – 18:00 **Coffee Break**

18:00 – 19:00 **William East (Perimeter Institute, Waterloo)** – online  
*Cosmic Censorship, Black Holes, and Backreaction: Adventures in the Collapse of Collisionless Matter*

19:00 – 20:00 **Florian Beyer (U. Otago)** – online  
*Fluids in the vicinity of Kasner big bang singularities*

- **Thursday, February 17th, 2022**

14:00 – 15:00 **Zoe Wyatt (U Cambridge)**  
*Stabilising relativistic fluids on slowly expanding cosmological spacetimes*

15:00 – 16:00 **J r mie Szeftel (Sorbonne U, Paris)** – online  
*The nonlinear stability of Kerr for small angular momentum*

16:00 – 17:00 **Martin Taylor (Imperial College London)** – online  
*The nonlinear stability of the Schwarzschild family of black holes*

17:00 – 18:00 **Coffee Break**

18:00 – 19:00 **Hans Lindblad (John Hopkins U, Baltimore)**  
*Global stability of Minkowski space for the Einstein-Maxwell-Klein-Gordon system in generalized wave coordinates*

19:00 – 20:00 **Markus Kunze (U Cologne)**  
*Static solutions to the spherically symmetric Einstein-Vlasov system: a particle-number-Casimir approach*

- **Friday, February 18th, 2022**

14:00 – 15:00 **Lars Andersson (MPI Potsdam)** – online  
*TBA*

15:00 – 16:00 **Alexandru Ionescu (Princeton U)** – online  
*On the asymptotic behavior of solutions to the Vlasov-Poisson system in 3 dimensions*

**The event takes place at the Erwin Schr dinger Institute - Boltzmann lecture hall! Online participation is possible via zoom. Zoom coordinates are available on request (secr@esi.ac.at) and after registration until February 13, 2022!**