



Dear Colleagues!

The V. Kupradze Institute of Mathematics at the University of Georgia is pleased to invite you to the Online Tbilisi Analysis & PDE Seminar. The seminar is held bi-weekly on Wednesdays at 20:00 (GMT+4) local time in Tbilisi.

Talk on March 4, 2026

Speaker: Dr. Bolys Sabitbek, University of Ghent, Belgium;

E-mail: Sabitbek.Bolys@ugent.be;

<https://analysis-pde.org/bolys-sabitbek/>

The title of the lecture: “Scattering and Asymptotics for Critically Weakly Hyperbolic and Singular System”

Abstract: We study a very general class of first-order linear hyperbolic systems that both become weakly hyperbolic and contain singular lower-order coefficients at a single time $t = 0$. In "critical" weakly hyperbolic settings, it is well-known that solutions lose a finite amount of regularity at $t = 0$. Here, we both improve upon the analysis in the weakly hyperbolic setting, and we extend this analysis to systems containing critically singular coefficients, which may also exhibit modified asymptotics and regularity loss at $t = 0$.

In particular, we give precise quantifications for (1) the asymptotics of solutions as t approaches 0, (2) the scattering problem of solving the system with asymptotic data at $t = 0$, and (3) the loss of regularity due to the degeneracies at $t = 0$. Finally, we discuss a wide range of applications for these results, including weakly hyperbolic wave equations (and equations of higher order), as well as equations arising from relativity and cosmology (e.g. at big bang singularities).

This is joint work with Arick Shao (QMUL, UK).

Date: March 4, 2026

Time: 20:00 (GMT+4) local time in Tbilisi;

(Compare to your local time: <https://www.timeanddate.com/worldclock/georgia/tbilisi>);

How to join:

The seminar is organized on the **Google Meet** platform. If you are already registered, you do not need to register again. Otherwise, to join the seminar, please send an email to kim@ug.edu.ge or register here:

<https://forms.gle/xfQJ9fg1uqe7CrZw6>.

You will then receive further information.

WEB of Seminar: <https://ug.edu.ge/en/tbilisi-analysis-and-pde-seminars>.

Organizers:

1. R. Duduchava, Institute of Mathematics, University of Georgia, Tbilisi, Georgia
2. E. Shargorodsky, Department of Mathematics, King's College London, UK
3. A. Meskhi, Kutaisi International University, Kutaisi, Georgia

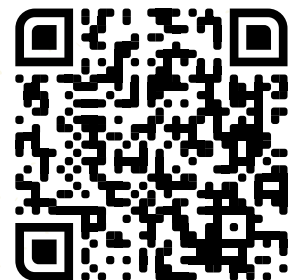
Secretary:

M. Tsaava, Institute of Mathematics, University of Georgia, Tbilisi, Georgia

Technical support:

G. Tutberidze, Institute of Mathematics, University of Georgia, Tbilisi, Georgia

Z. Vashakidze, Institute of Mathematics, University of Georgia, Tbilisi, Georgia



Google Meet Join Information

- **Video Call Link:** <https://meet.google.com/fes-ughx-mob>
- **Invitation (Calendar) Link:** <https://calendar.app.google/7GxkYetKVZVAEpcz8>