



Dear Colleagues!

Institute of Mathematics of the University of Georgia is pleased to invite you to the Online Tbilisi Analysis & PDE Seminar. The seminar is held bi-weekly on Tuesdays at 20 : 00 local time in Tbilisi.

Talk on January 24, 2023

Speaker: Dorothee Haroske, University of Jena;
<https://www.researchgate.net/profile/Dorothee-Haroske>

The title of the lecture: “Morrey smoothness spaces: A new approach”

Abstract: In the recent years so-called Morrey smoothness spaces attracted a lot of interest. They can (also) be understood as generalisations of the classical spaces $A_{p,q}^s(\mathbb{R}^n)$, $A \in \{B, F\}$, where the parameters satisfy $s \in \mathbb{R}$ (smoothness), $0 < p \leq \infty$ (integrability) and $0 < q \leq \infty$ (summability). In the case of Morrey smoothness spaces additional parameters are involved. In our opinion, among the various approaches at least two scales enjoy special attention, also in view of applications: the scales $\mathcal{A}_{u,p,q}^s(\mathbb{R}^n)$, with $\mathcal{A} \in \{\mathcal{N}, \mathcal{E}\}$, $u \geq p$, and $A_{p,q}^{s,\tau}(\mathbb{R}^n)$, with $\tau \geq 0$.

We reorganise these two prominent types of Morrey smoothness spaces by adding to (s, p, q) the so-called slope parameter ϱ , preferably (but not exclusively) with $-n \leq \varrho < 0$. It comes out that $|\varrho|$ replaces n , and $\min(|\varrho|, 1)$ replaces 1 in slopes of (broken) lines in the $(\frac{1}{p}, s)$ -diagram characterising distinguished properties of the spaces $A_{p,q}^s(\mathbb{R}^n)$ and their Morrey counterparts.

Our aim is two-fold. On the one hand we reformulate some assertions already available in the literature (many of them are quite recent). On the other hand we establish on this basis new properties, a few of them became visible only in the context of the offered new approach, governed, now, by the four parameters (s, p, q, ϱ) .

The talk is based on joint work with Hans Triebel (Jena).

Date: January 24, 2023

Time: 20 : 00 local time in Tbilisi;

(Compare to your local time:

How to join:

The seminar is organized on the **Cisco Webex Meetings**. If you are already registered, you do not need to register again. Otherwise, to join the seminar please send an e-mail to seminarim@ug.edu.ge or register here:

<https://forms.gle/xfQJ9fg1uqe7CrZw6>

You will then receive further information.

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

Organizers:

1. R. Duduchava, Institute of Mathematics, University of Georgia, Tbilisi
2. E. Shargorodsky, Department of Mathematics, King's College London
3. G. Tephnadze, Institute of Mathematics, University of Georgia, Tbilisi

Secretary:

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

Technical support:

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

