

Tbilisi Analysis & PDE Seminar



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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 Mondays at 16:00 GMT (at 17:00 CET, at 20:00 local time in Tbilisi).

Seminar on March 22:

Speaker: Prof. Dr. Martin Costabel, IRMAR, Institut Mathématique Université de Rennes 1;
<https://perso.univ-rennes1.fr/martin.costabel/>

The title of the lecture: “Sharp regularity results for electromagnetic fields in Lipschitz domains”

Abstract: The standard energy spaces for the time-harmonic Maxwell equations in a bounded 3-dimensional domain are the Hilbert spaces of square-integrable vector fields whose divergence and curl are also square-integrable and whose tangential or normal components are zero on the boundary. Elements of these spaces are known to have additional regularity. The classical Gaffney inequality (1951) states that their gradients are square-integrable if the domain is smooth, and it is clear that there is less regularity if the boundary has corners and edges. For Lipschitz domains, regularity in the Sobolev space of order $1/2$ has been known for 30 years, and recently a domain has been constructed that shows that in the scale of Sobolev spaces this is sharp. By the principle that Maxwell singularities are carried by gradients, this regularity result can also be equivalently formulated as a regularity result for the classical Dirichlet and Neumann problems of the Laplacian on bounded Lipschitz domains. I will describe the context and motivation for the result and explain the construction of the domain and some of its additional properties.

Date: March 22, 2021;

Time: 16:00 GMT (17:00 CET and 20:00 local time in Tbilisi);

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-seminar>

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:

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

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