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 20 : 00 local time in Tbilisi.

Talk on May 23, 2022

Speaker: Prof. **Oleksiy Karlovych**, NOVA University Lisbon, Portugal;
`https://docentes.fct.unl.pt/oyk/`

The title of the lecture: "Algebras of convolution type operators with continuous data do not always contain all rank one operators"

Abstract: Let $X(\mathbb{R})$ be a separable rearrangement-invariant Banach function space with the Boyd indices satisfying $0 < \alpha_X \le \beta_X < 1$. The algebra $C_X(\dot{\mathbb{R}})$ of continuous Fourier multipliers on $X(\mathbb{R})$ is defined as the closure of the set of continuous functions of bounded variation on $\dot{\mathbb{R}} = \mathbb{R} \cup \{\infty\}$ with respect to the multiplier norm $\|b\|_{M_{X(\mathbb{R})}} := \|F^{-1}bF\|_{X(\mathbb{R})\to X(\mathbb{R})}$, where F is the Fourier transform. It is known that if $X(\mathbb{R})$ is reflexive, then the ideal of compact operators is contained in the Banach algebra

$$\mathcal{A}_{X(\mathbb{R})} = \operatorname{alg}\left\{aI, F^{-1}bF : a \in C(\dot{\mathbb{R}}), b \in C_X(\dot{\mathbb{R}})\right\}$$

generated by all multiplication operators aI by continuous functions $a \in C(\dot{\mathbb{R}})$ and by all Fourier convolution operators $F^{-1}bF$ with symbols $b \in C_X(\dot{\mathbb{R}})$. We show that if $X(\mathbb{R})$ is separable but non-reflexive, then the algebra $\mathcal{A}_{X(\mathbb{R})}$ does not contain all rank one operators. In particular, this happens in the case of the Lorentz spaces $L^{p,1}(\mathbb{R})$ with $1 < p < \infty$. This is a joint work with Eugene Shargorodsky (King's College London, UK).

Date: May 23, 2022
Time: 20 : 00 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 **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

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