INTERNATIONAL BIWEEKLY ONLINE SEMINAR ON ANALYSIS, DIFFERENTIAL EQUATIONS AND MATHEMATICAL PHYSICS

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On the Bishop-Phelps property

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A real topological vector space is said to have the Krein–Milman property if every bounded, closed, convex subset has an extreme point. In the case of every bounded, closed, convex subset is the closed convex hull of its extreme points, then we say that the topological vector space satisfies the strong Krein–Milman property. The strong Krein–Milman property trivially implies the Krein–Milman property. We provide a sufficient condition for these two properties to be equivalent in the class of Hausdorff locally convex real topological vector spaces. This sufficient condition is the Bishop–Phelps property, which we introduce for real topological vector spaces by means of uniform convergence linear topologies. We study the inheritance of the Bishop–Phelps property. Nontrivial examples of topological vector spaces failing the Krein–Milman property are also given, providing us with necessary conditions to assure that the Krein–Milman property is satisfied. Finally, a sufficient condition to assure the Krein–Milman property is discussed.

*Seminar website: https://msrn.sfedu.ru/sl. The seminar uses Microsoft Teams online platform.
Please send questions to ademp.seminar@gmail.com (Tatiana Andreeva, scientific secretary).

The seminar is organized by the coordinators Alexey Karapetyants and Vladislav Kravchenko within the activities of the Regional Mathematical Center of the Southern Federal University in collaboration with Institute of Mathematics, Mechanics and Computer Sciences of the Southern Federal University and the OTHA research group in Operator Theory and Harmonic Analysis.

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