

**Functional Analysis, Mathematical Physics,  
and Dynamical Systems  
(FAMPDS)**

**Joint American-Ukrainian Virtual Colloquium Series  
Spring 2021**

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*Talk 12: On the Faithfulness of the Vitali Coverings for the  
Hausdorff Dimension Calculation and Its Applications*

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**Abstract**

One approach to the simplification of the calculation of the Hausdorff dimension consists in some restrictions of admissible coverings. In this talk, we discuss new results related to the faithfulness/non-faithfulness of the Vitali coverings generated by different expansions for real numbers as well as some open questions in this direction. Another important topic to be treated is related to transformations preserving the Hausdorff dimension. We consider the interplay of this topic with fine fractal analysis of singularly continuous probability measures and faithfulness of the Vitali coverings. Finally, we discuss applications of the above results in dimensional number theory (fractal properties of subsets of non-normal numbers).

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**Friday, May 28, 10:00-11:00 AM (PDT), 20:00-21:00 (EEST)**

**Online via Zoom at**

<https://fresnostate.zoom.us/j/5233106532>