

CCSU
DEPARTMENT OF MATHEMATICAL SCIENCES

COLLOQUIUM

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11:30 AM – 12:30 PM
Maria Sanford, Room 103

STABILITY OF LOCAL TOPOLOGICAL PROPERTIES UNDER PRODUCT

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(JOINT WORK WITH FRANCIS JORDAN)

Abstract: Many important local topological properties such as, for instance, the Fréchet-Urysohn property, tightness and fan-tightness fail to be stable under product, or even under the operation of taking the supremum of two topologies on the same set. In each case, sufficient conditions on the factor spaces to ensure that the product space has the desired property have been the focus of extensive work (by A. Arhangel'skii, A. Bella, E. Michael, T. Nogura, J. Van Mill, to cite only a few).

After an introduction about relevant examples of topological properties to be considered, I will present an abstract scheme using relations on filters that leads to unifying results concerning the problem of stability under product. Corollaries recover or refine a large number of classical and of recent results in the area, and also include entirely new results. An interesting feature of the approach is that the abstract results could find other applications beyond those given as illustrative examples.

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