

BERNOULLIS TAFELRUNDE

GRADUATE STUDENT SEMINAR

Monday, April 11 2022, 12:15-13:00

Hybrid seminar

Seminar room 05.001, Spiegelgasse 5 / Zoom

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MacWilliams' Extension Theorem for rank-metric codes

ABSTRACT

The MacWilliams' Extension Theorem is a classical result by Florence Jessie MacWilliams. It shows that every linear isometry between linear block-codes endowed with the Hamming distance can be extended to a linear isometry of the ambient space. Such an extension fails to exist in general for rank-metric codes, that is, one can easily find examples of linear isometries between rank-metric codes which cannot be extended to linear isometries of the ambient space. In this talk, after an introductory part on coding theory, we will explore to what extent a MacWilliams' Extension Theorem may hold for rank-metric codes. We will provide a list of examples of obstructions to the existence of an extension, as well as a positive result.