

Department of Mathematics, BGU

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# Jerusalem - Be'er Sheva Algebraic Geometry Seminar

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*On Wednesday, November 4 2020*

*At 15:00 – 16:30*

**In**

Marc Levine (Essen)

will talk about

## **Quadratic Euler characteristics of hypersurfaces and hypersurface singularities**

Abstract: This is a report on joint work with V. Srinivas and Simon Pepin Lehalleur. Recently, with Arpon Raksit, we have shown that for a smooth projective variety  $X$  over a field  $k$ , the quadratic Euler characteristic of  $X$ , an element of the Grothendieck-Witt ring of quadratic forms over  $k$ , can be computed via the cup product on Hodge cohomology followed by the canonical trace map. Following work of Carlson-Griffiths, this leads to an explicit formula for the quadratic Euler characteristic of a smooth projective hypersurface defined by a homogeneous polynomial  $F$  in terms of the Jacobian ring of  $F$ , as well as a similar formula for a smooth hypersurface in a weighted projective space. In some special cases, this leads to quadratic versions of classical conductor formulas with some mysterious and unexpected correction terms, even in characteristic zero.