

1073-16-177

**Frauke M. Bleher\***, University of Iowa, Department of Mathematics, Iowa City, IA 52242.

*Richard Brauer's work and universal deformation rings.* Preliminary report.

In this talk, I will show how Richard Brauer's work on 2-modular blocks of finite groups of tame representation type can be used to compute the universal deformation rings of certain modules belonging to such blocks. I will concentrate on modules whose endomorphism rings are given by scalars and their syzygies. When determining the universal deformation rings of these modules, it turns out that one needs both the modular representation theory of the block under consideration and the values on 2-singular elements of the ordinary irreducible characters belonging to this block.

If the block is principal, Brauer showed that there is very little fusion. This results in very nice formulas for character values on 2-singular elements. However, if the block is not principal, fusion can be much less controlled. One then has to use Brauer's generalized decomposition numbers. These lie in the ring of integers of an appropriate cyclotomic field of 2-power order. (Received August 01, 2011)