

THROUGH THE CUBIC LOOKING GLASS: LINES AND LOCAL SOLUTIONS

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Inspired by a 1997 paper of Trevor Wooley, we want to report on recent joint work with Julia Brandes and David Leep on K -rational lines on cubic hypersurfaces over a number field K . We save two variables over the previously known 37 in general, and can reduce this even further to 31 variables over $\mathbb{Q}$ (using in addition recent work of Bernert and Hochfilzer). Motivated by the same paper, I also want to discuss some recent progress on local solubility of systems of cubic forms.