Francesco Russo

Congruences of 5-secant conics and the rationality of some admissible cubic fourfolds

Kuznetsov Conjecture and the work of Hassett predict that a general cubic fourfold belonging to an irreducible divisor $\mathcal{C}_d$ parametrizing smooth cubic hypersurfaces in $\mathbb{P}^5$ of discriminant d is rational if and only if d is an admissible value in the sense of Hassett, that is, if and only if $d > 6$ is an even integer not divisible by 4, by 9 nor by any odd prime of the form $2 + 3m$.

Our main result is the proof of this conjecture for the smallest admissible values $d = 26$ and $d = 38$ (the case $d = 14$ being classical), via the construction of a *congruence of 5-secant conics* to a surface S_d contained in the general element of $\mathcal{C}_d$ for $d = 14, 26, 38$.

This is joint work with Giovanni Staglianò.