Wiman's Sextic

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In this talk, I will talk about Wiman's smooth sextic mentioned in the [Wim96] for the first time. It can be defined as

$$10x^3y^3 + 9z(x^5 + y^5) - 45x^2y^2z^2 - 135z^4xy + 27z^6 = 0.$$

Wiman's smooth sextic have an automorphism group of maximal order for its genus 10 (360)[Har19]. Every smooth plane curve C of degree 6 with $Aut(C) = A_6$ is projectively equivalent to Wiman's smooth sextic. It is the most symmetric smooth sextic.

References

[Har19] Takeshi Harui. Automorphism groups of smooth plane curves. *Kodai Mathematical Journal*, 42(2):308–331, 2019.

[Wim96] Anders Wiman. Ueber eine einfache gruppe von 360 ebenen collineationen. *Mathematische Annalen*, 47(4):531–556, 1896.