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## On complex 4-nets

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**Abstract:** Nets are certain special line arrangements in the plane and they occur in various contexts related to algebraic geometry, such as resonance varieties, homology of Milnor fibers and fundamental groups of curve complements. We will investigate nets in the complex projective plane  $\mathbb{C}\mathbb{P}^2$ . Let  $m \geq 3$  and  $d \geq 2$  be integers. An  $(m, d)$ -net is a pencil of degree  $d$  algebraic curves in  $\mathbb{C}\mathbb{P}^2$  with a base locus of exactly  $d^2$  points, which degenerates into a union of  $d$  lines  $m$  times. It was conjectured that the only 4-net is a  $(4, 3)$ -net called the Hessian arrangement. I will outline our proof together with A. Bassa of this conjecture.

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**Date:** December 11, 2020; Friday

**Time:** 17:00

**Google Meet:** Please contact the organizers for the link.