Meet the professor

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Dan Abramovich

- subject: Algebraic Geometry
- topics:
  - Moduli spaces
  - Birational Geometry
  - Arithmetic Geometry
- Proud supervisor of 18 theses

Algebraic Geometry

- The study of algebraic varieties.
- Algebraic varieties are the solution sets of polynomial equations
- "$ax + by + c = 0$ and $x^2 + y^2 = R^2$ on steroids".

Moduli spaces

- { varieties of a fixed type } $\longleftrightarrow$
  { points of a variety - "moduli space" }
- e.g.: { lines $y = ax + b$ in plane } $\leftrightarrow \{(a, b) : a \neq 0\}$.
- **Two papers:**
  - With Vistoli: *Compactifying the space of stable maps*, JAMS 2001.
  - With Caporaso and Payne: *The tropoicalization of the moduli space of curves,* Annales ENS 2015.
- **Students:** Gabriele La Nave, Matt Spencer, Jonathan Wise, Qile Chen, Noah Giansiracusa, Steffen Marcus, Sam Molcho, Vagelis Routis, Kenny Ascher, Dori Bejleri, Giovanni Inchiostro

Birational Geometry

- Two varieties X_1 and X_2 are *birationally equivalent* if $K(X_1) = K(X_2)$.
- **Two papers:**
  - With Karu, *Weak semistable reduction in characteristic 0*, Inventiones 2000.
  - With Karu, Matsuki and Włodarczyk: *Torification and factorization of birational maps*, JAMS 2002.
- **Students:** Jianhua Wang, Kalle Karu, Jiun-Cheng Chen, Alicia Harper, also Noah, Dori, Kenny, Giovanni, now Ming Hao Quek, Steffen Obinna.

Arithmetic geometry

- If a variety X has equations in $\mathbb{Q}$, what can one say about the set of rational solutions $X(\mathbb{Q})$?
- **Two papers:**
  - *Uniformity of stably integral points on elliptic curves,* Inventionnes (1997)
  - With Anthony Várilly-Alvarado, *Level structures on abelian varieties and Vojta's conjecture,* Compositio (2017)
- **Students:** Patricia Pacelli, Kenny Ascher, now Tangli Ge.

Other topics

- **Derived:** Jiun-Cheng Chen
- **Nonarchimedean:** martin Ulirsch
- **Grothemieck topologies:** Henning Ulfarsson

The end

Thank you for your attention