AI@Bicocca seminar

You are all welcome to the next bite of the series

"**AI@Bicocca**"

which is meant to give you a small taste of the

Algebra at Bicocca and beyond

Jessica Anzanello

Università di Padova

The Chebotarev invariant of a direct product of non-abelian finite simple groups

Abstract: A subset $\{g_1, \ldots, g_t\}$ of a finite group G *invariably generates* G if $\{g_1^{x_1}, \ldots, g_t^{x_t}\}$ generates G for every t-tuple $(x_1, \ldots, x_t) \in G^t$. In this talk, I will answer the following questions. Let G be a direct product of k non-abelian finite simple groups. If we choose random elements from G independently, with replacement, and with the uniform distribution, how many should we expect to pick until the elements chosen generate G? And how many to invariably generate G?

To do this, I will introduce an invariant that is related to problems in Galois theory, called the *Chebotarev invariant* $C(G)$ of G, which is the expected value of the random variable n that is minimal subject to the requirement that n randomly chosen elements of G invariably generate G.

This is joint work with A. Lucchini and G. Tracey.