

## **Generalization of proofs and codification of graph families**

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In this talk, I will explain how to apply Baaz's generalization method and a recent graph-theoretical technique to, respectively, formal proofs from elementary number theory and certain increasing families of simple graphs. These procedures have resulted to have a considerable potential in revealing arithmetical patterns, that got reflected in theorems (for example, sufficient conditions for a value to be a divisor of an arbitrary Fermat number) and conjectures (mainly about integer sequences).