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Postdoctoral Fellowship

Scope of Research

The Number Theory Research Project at the Mathematics Division of Stellenbosch University, led by Professor Florian Luca, is offering a one-year postdoctoral position in Diophantine Equations. The position supports a research project that examines Diophantine equations which arise from intersecting two linearly recurrent sequences. The project addresses methods for efficiently computing such intersections when the sequences depend on some natural parameter. Examples are the sequences of X or Y coordinates of a Pell equation which depend on the number usually denoted by d . Another example coming from elliptic curves is the number of points on an elliptic curve E defined over a finite field \mathbb{F} once the field \mathbb{F} is extended to the field of dimension n over \mathbb{F} (as an \mathbb{F} linear space). Yet another example consists in Diophantine equations with members of k -generalized Fibonacci sequences where k is also a varying parameter. Familiarity with methods from algebraic and transcendental number theory (Baker's method, the subspace theorem) is expected.

Requirements.

- Applicants must possess a Ph.D. in Mathematics or a related field obtained within the last 5 years.
- Applicants must be interested and knowledgeable in number theory both from the theoretical aspect as well as from the computational aspect.
- Applicants must possess exceptional qualitative research and analytical skills.
- Applicants must possess the ability to work independently and efficiently with minimal supervision or oversight.

Commencement date: 1 January 2025.

Closing date: 30 August 2024.

Enquiries: Professor Florian Luca: fluca@sun.ac.za

Interested applicants should send a letter of application, accompanied by a comprehensive curriculum vitae, including a list of publications, a sample of published work, and the names and contact details of at least two referees, to Prof. Florian Luca: fluca@sun.ac.za