

## Online Number Theory Seminar

13 January 2023. – 17:00-17:50

### Yann Bugeaud: On the continued fraction expansion of algebraic numbers

Let  $\xi = [a_0; a_1, a_2, \dots]$  be an irrational algebraic real number and  $(p_k/q_k)_{k \geq 1}$  denote the sequence of its convergents. We survey various (mostly arithmetical) properties of the sequences  $(a_j)_{j \geq 1}$  and  $(q_k)_{k \geq 1}$ . Let  $(u_n)_{n \geq 1}$  be a non-degenerate linear recurrence sequence of integers, which is not a polynomial sequence. We show that if the intersection of the sequences  $(q_k)_{k \geq 1}$  and  $(u_n)_{n \geq 1}$  is infinite, then  $\xi$  is a quadratic number, a recent result obtained jointly with Khoa Nguyen.