

## Seminar

### Case studies of Experimental Mathematics: $p$ -adic valuations of recurrences.

Abstract:

Let  $t_n$  be a sequence that satisfies a first order homogeneous recurrence  $t_n = Q(n)t_{n-1}$ , where  $Q(n) \in Z[n]$ . These sequences arise in different types of problems like the integration of rational functions and the evaluation of infinite sums. The simplest example of the  $p$ -adic valuation of a sequence of this type is given by Legendre's formula

$$nu_p(n!) = \frac{n - s_p(n)}{p - 1},$$

where  $s_p(n)$  is the sum of the digits of  $n$  base  $p$ . In this talk, the asymptotic behavior of the  $p$ -adic valuation of  $t_n$  will be described.

A possible extension of this problem will be illustrated with the  $p$ -adic valuation of the Stirling numbers.