1014-65-636   **Wen-shin Lee*** (`wenshin.lee@ua.ac.be`), Mathematics and Computer Science Department, University of Antwerp, Middelheimlaan 1, 2020 Antwerpen, Belgium. *Symbolic-Numeric Sparse Polynomial Interpolation.*

We consider the problem of sparse interpolation of a multivariate polynomial that is given as a black box in floating-point arithmetic. When the target polynomial is sparse, there are efficient interpolation algorithms that take advantage of this situation, such as Zippel's algorithm, the Ben-Or/Tiwari algorithm, and their variances. However, these methods are developed for exact arithmetic.

In this talk, I will discuss general issues and a framework for sparse polynomial interpolation in a floating-point environment. That is, both the inputs and outputs of the black box are precise up to a fixed number of digits. Our approaches for floating-point sparse polynomial interpolation and possible extensions will be addressed. Based on our observation of the link between the exact Ben-Or/Tiwari algorithm and the classical Prony's method for interpolating a sum of exponential functions, we also explore recent development in the Prony's method.

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