



9h45 - 13h00
15 MAI 2023

SÉMINAIRE - HISTOIRE ET PHILOSOPHIE DES MATHÉMATIQUES

POLYNÔME :

ÉLÉMENTS D'UNE HISTOIRE GLOBALE--III

ORGANISÉ PAR :
Karine CHEMLA & Sara CONFALONIERI



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PROGRAMME

9h45-10h00

Karine Chemla et al.

Introduction

10h-11h15

Niccolò Guicciardini

The role of algebra in Newton's natural philosophy

Abstract: Newton's contributions to the algebra of polynomials, "affected equations," and series ("equation with an infinite number of terms") are well-known. Indeed, during the 18th Century, the *Arithmetica Universalis* (1707, and many editions) was Newton's most read book. The *Principia*, however, is known as a work written in "geometrical style." Consequently, the historiography is divided into critics and admirers of Newton's deployment of geometrical methods, often understood as indebted to the Greek geometrical heritage, in his magnum opus. In my talk I will review the role played by algebraic methods in Newton's natural philosophy. As we shall see, Newton the algebraist is at work not only in the *Arithmetica* but also in the *Principia*. I will suggest that an algebraic reading of the *Principia* is possible, a reading that puts into relief aspects of the Newtonian mathematization of natural philosophy that have been somewhat backgrounded in the rich literature devoted to the *Principia*. Such process of "selecting" and "purifying," to use Chemla's terms for two historiographic operations informing the narratives of the history of mathematics since the nineteenth century, has led to an undervaluation of the debt of the author of the *Principia* towards Vietian "analytical art," the algebraized reading of Euclid promoted by Barrow, and Wallis's "arithmetic of the infinites."

11h15-11h30 **Pause**

11h30-12h45 **Sara Confalonieri**

Qu'est-ce qu'une équation chez Cardano?

Abstract : Le but de mon exposé est de suivre quelques pistes qui permettront d'attaquer la question de quel concept de polynôme/équation chez Cardano a pu soutenir sa pratique mathématique. En particulier, je vais me concentrer sur les critères pour la classification des familles d'équations qu'il hérite de la tradition d'abaco, sur le traitement d'équations de degré supérieur à trois et sur l'interprétation géométrique sous-jacente.

What is an equation/polynomial for Cardano in the XVIth century?

Abstract: The aim of my talk is to follow some lines of inquiry to tackle the question of what concept of equation or polynomial in Cardano may have supported his mathematical practice. In particular, I will focus on the criteria for the classification of families of equations that he inherits among others from the abaco tradition, on the treatment of equations of degree higher than three, and on the underlying geometric interpretation.

12h45 **Discussion générale**

