



Contribution ID: 61

Type: **Invited**

## The origin of Galileo's New Science in a challenging problem

*Tuesday, 5 September 2023 10:30 (30 minutes)*

In *The Assayer* Galileo Galilei famously proclaimed that the book of nature is written in the language of mathematics. However, little support for this bold claim could be found in his own published works until that time. Indeed, it would take another fifteen years before the publication of the *Discorsi*, in which he convincingly demonstrated how a mathematical theory of motion could be established using “triangles, circles, and other geometric figures.” Based on a close reading of Galileo's “Notes on Motion”, I will demonstrate that the foundation for this new theory of motion had been laid long before the *Assayer*, with its general remarks on scientific methodology, was published. The emergence of the new science was indeed driven not so much by a new methodology but rather by a very specific, mathematically challenging problem - the motion of a pendulum in relation to that of balls rolling down inclined planes.

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**Session Classification:** Il Saggiatore e la nascita della scienza moderna / The Assayer and the Birth of Modern Science

**Track Classification:** SISFA 2023