What was 'Physico-mathematics' and What did it have to do with the Career of Descartes?

Dr. John A. Schuster, FAHA
School of History and Philosophy of Science
University of Sydney
&
Campion College, Sydney

Abstract: 'Physico-mathematics' is both an actors' category from the critical phase of the Scientific Revolution (c.1600-1650) and an increasingly important category for historical analysis and explanation. My study (2013) of the younger Descartes' career in natural philosophy, method and various subordinate specialist fields depended upon tracing Descartes' particular and portentous involvement with what he considered physico-mathematics to be, after he acquired the concept from Isaac Beeckman 1618. This paper cuts a concise path through my findings about Descartes' earliest physico-mathematical agenda and how the idea played through his work, even into his later career, when the term was not on public display in his systematic works. Running through all this work was his curious, historically short-lived, yet fruitful epistemological conceit that physico-mathematically construed results in mixed mathematics make possible the (non-Aristotelian) natural philosopher's dream of unproblematically reading natural philosophical causes out of geometrical representations of solid mixed mathematics results—in effect 'seeing the causes'. My aim is to cast light on both Descartes' trajectory in the Scientific Revolution and the larger processes involved.

References:

J.A. Schuster, 'Physico-mathematics', in Lawrence Nolan (ed.) *The Cambridge Descartes Lexicon* (CUP, 2016), 585-7.

J.A. Schuster, 'Cartesian Physics', in J.Z. Buchwald and and Robert Fox (eds.) *The Oxford Handbook of the History of Physics* (Oxford, 2013), pp.56-95, esp. pp. 57-68.

J.A. Schuster, *Descartes-agonistes: Physico-mathematics, Corpuscular-mechanism and Method, 1618-33*. (Springer, 2013). Chapter 3 and pp.56-9, 469-471.

J.A. Schuster 'Physico–mathematics and the Search for Causes in Descartes' Optics—1619-37', *Synthèse* (2012) 185: 467-499, especially pp.467-484, 496-98 on Descartes' dream of 'seeing the causes' in physico-mathematical optics.