

HARVARD UNIVERSITY

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HARVARD LOGIC COLLOQUIUM

George E. Smith

Tufts University

Theory-Mediated Measurement of Interlinked Constants Evidence of a Different Kind?

DATE: Wednesday, November 20

TIME: 4:30–5:30 pm

LOCATION: Logic Center, Room 420, 2 Arrow Street

In his landmark paper of 1900 in which he derived his law of blackbody radiation from Boltzmann's theory of entropy, Planck invoked as evidence inferred values for a series of theoretically interlinked microphysical constants none of which had been measured with precision before. In doing so he initiated a kind of evidence that had never been successfully deployed before, yet quickly came to be central to modern microphysics. The talk will examine the distinctive logic underlying this kind of evidence and sketch the history of its becoming increasingly authoritative before ending with questions first about just what it is evidence for and finally about the extent to which the measurements achieving extraordinarily precise values of the constants can legitimately be said to have gained experimental access to specifics of the microphysical realm.