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Tatiana Romanovskaya*, tromanov@gwu.edu. *Godel's Incompleteness Theorems Viewed in the Wider Context of the Philosophy of Science.*

Godel's Incompleteness Theorems ushered in a renewed interest in the role of intuition in mathematics. At about the same time, we see a growing appreciation for intuition in the new physics. Even in these two contexts we can see different types of and correspondingly different roles for intuition yet in a sense clearly distinct from the way the notion was used by philosophers in the previous two centuries. I refer to this novel use as "Professional Intuition", which is complementary to and in dialogue with technical tools such as abstract models and formal theories of reliability. Some particular examples will be used to amplify these themes, drawing on the work of E. Feinberg and more recently Kevin Kelly and others. The latter, interestingly, makes use of the very notion of computational or recursion theoretic hierarchies whose origins arise directly from Godel's work on incompleteness. (Received January 31, 2012)