



**Speaker:** Ludovic Patey  
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Tuesday, November 17, 2015

2:00 PM

125 Hayes-Healy Hall

**Title:** The strength of Ramsey's theorem under reducibilities

**Abstract:**

Ramsey's theorem ( $RT^n_k$ ) asserts that every  $k$ -coloring over  $n$ -tuples of integers admits a infinite monochromatic subset. Whenever  $n \geq 3$ ,  $RT^n_k$  is equivalent to the arithmetic comprehension axiom (ACA). On the other hand,  $RT^2_k$  is strictly weaker than ACA and incomparable with weak König's lemma. Last,  $RT^1_k$  is provable over RCA. The provability strength of  $RT^n_k$  does not depend on the number of its colors in reverse mathematics. However, there is an asymmetry in the proof of equivalence between  $RT^n_k$  and  $RT^n_p$  whenever  $k$  and  $p$  differ. In this talk, we shall highlight this difference by using the notion of computable reduction which, unlike provability over RCA, cares about the number of applications of the considered principle.