



## SONDERKOLLOQUIUM

Am Freitag, dem 02.07.2010, 16.15 Uhr in W2-1-148

spricht

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über

### **Albert Einstein, Analogizer Extraordinaire**

Where does deep insight in physics come from? For those who think of physics as a highly rational science grounded in strict mathematics, it is tempting to think that it comes from the purest and most precise of reasoning, following ironclad laws of thought that compel the clear mind completely rigidly. And yet the truth is quite otherwise. One finds, when one looks closely at any major discovery in physics, that the greatest of physicists are the most daring and are constantly guided by blurry, instinctive, nearly irrational mental forces. Albert Einstein ideally exemplifies this thesis.

In this talk I will describe the key role, throughout Albert Einstein's fabulously creative life, played by guesses coming from analogies that lacked any basis in pure reasoning. In particular, I will describe the subtle analogies that gave rise in Einstein's mind to a series of astonishing and earth-shaking hypotheses – the hypothesis that light has the same velocity in all frames of reference (1905), the hypothesis that light is composed of particles (1905), the hypothesis that all mass possesses an astonishing amount of energy but that is deeply hidden (1905-1907), and lastly, the hypothesis that gravitation and acceleration are merely two faces of a single coin (1907).

Einladende: Jürgen Parisi, Alexander Rauh