

## SFB-Seminar Scattering amplitudes in gauge and gravity theories (Teilprojekt C6)

### ZEIT:

4.6.2013, 14:00 Uhr - 16:30 Uhr

### ORT:

Albert-Einstein-Institut  
Hörsaal im Zentralgebäude  
Am Mühlenberg 1  
14476 Potsdam-Golm

### PROGRAMM:

14:00 - 15:00 **Prof. Dr. Bernard de Wit**

#### **Deformed gauged $SO(8)$ supergravities: what can they tell us about M-theory?**

There exists a continuous one-parameter family of gauged  $SO(8)$  supergravities. Possible eleven-dimensional origins of this phenomenon are explored. Taking the original proof of the consistency of the truncation of 11D supergravity to  $SO(8)$  gauged supergravity as a starting point, a number of critical issues is discussed, such as the preferred electric-magnetic duality frame in four dimensions and the existence of dual magnetic gauge fields and related quantities in eleven dimensions. Some of those issues are resolved but others seem to point to obstructions in embedding the continuous degeneracy in 11D supergravity.

While the final outcome of these efforts remains as yet inconclusive, new results have been obtained. Among those is the full non-linear ansatz for the seven-dimensional flux expressed in terms of the scalars and pseudoscalars of 4D supergravity, valid for both the  $S_7$  and the  $T_7$  truncations without resorting to tensor-scalar duality. Possible interpretations and tests of these results are discussed.

15:00 - 15:30 Kaffee-Pause

### Kontakt:

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**Amplitudes and correlation functions in  $N=4$  super Yang-Mills**

I will review progress on obtaining formulas for scattering amplitudes and correlation functions in  $N=4$  super Yang-Mills theory. Given an ansatz in terms of suitable polylogarithmic functions, one may apply a bootstrap approach to construct analytic results.

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