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ARNOLD SOMMERFELD  
CENTER FOR THEORETICAL PHYSICS



# Arnold Sommerfeld Lecture Series

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Valdivia, Chile

Sommerfeld Theory Colloquium:

Electric-magnetic Duality  
and Space-time Structure

The symmetry between electricity and magnetism (“electric-magnetic duality”) is considered as a key property of Maxwell’s theory. It is indicated how it can be implemented as a symmetry of the action, and not just of the equations of motion. This can only be achieved at the price of giving up manifest Lorentz invariance. Thus one can have either manifest electric-magnetic duality invariance, or manifest space-time invariance; but not both. Furthermore, one can derive space-time invariance from electric-magnetic invariance. This shows a subtle interplay between both invariances; and suggests that it may be advantageous to consider electric- magnetic duality as more fundamental than space-time structure, in order to unravel “hidden” symmetries of gauge theories.

Wednesday, July 9, 2014, 16:15h, Room A348/349, Theresienstr. 37/III, LMU