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The structure of Yang-Mills spectrum for arbitrary semisimple gauge algebras

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Pure Yang-Mills theory is confining for any simple gauge algebra, although the case of su(3), i.e. pure gauge QCD, has logically been the most studied one so far. As for QCD, glueballs are expected to be present in the low-energy spectrum of Yang-Mills theory with an arbitrary simple gauge algebra. In this talk, the general structure of this spectrum will be discussed within a quasigluon picture, where glueballs are seen as bound states of a given number of quasigluons interacting via an instantaneous potential. Such a framework has already proved to be successful in describing the pure gauge su(3) lattice data, both qualitatively and quantitatively. The qualitative features of the low-lying glueball spectrum will be shown to be common to all algebras, excepted the lightest C=- glueballs that only exist when the gauge algebra is su(N>2). The special case of the gauge algebra su(N) at large N will be discussed and compared to recent lattice data.

Auteur principal: Dr BUISSERET, Fabien (University of Mons)

Orateur: Dr BUISSERET, Fabien (University of Mons)

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