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Investigation of N=1 supersymmetric Yang-Mills theory

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We summarize the latest results from our numerical simulations of supersymmetric Yang-Mills theory with two and three colors. For gauge group SU(2) we use an optimized variational method with an extended operator basis to extract the masses of groundstates and excited states in the scalar, pseudoscalar and spin 1/2 sector. The extrapolations to the chiral and continuum limits indicate the formation of supermultiplets for both ground and excited states. Further, due to the extended operator basis, we are able to investigate the mixing content of the physical states. For gauge group SU(3) we have extracted the ground state masses in the scalar, pseudoscalar and spin 1/2 channels. Using a combined extrapolation towards the chiral and continuum limit, we find the formation of a bound state supermultiplet, too.

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