Spectrum and thermodynamic properties of two-dimensional N=(1,1) super Yang-Mills theory with fundamental matter and a Chern-Simons term[1] UWE TRITTMANN, Otterbein College — We consider N=(1,1) super Yang-Mills theory in 1+1 dimensions with fundamentals at large-N_c. A Chern-Simons term is included to give mass to the adjoint partons. Using the spectrum of the theory, we calculate thermodynamic properties of the system as a function of the temperature and the Yang-Mills coupling. In the large-N_c limit there are two non-communicating sectors, the glueball sector, which we presented previously, and the meson-like sector that we present here. We find that the meson- like sector dominates the thermodynamics. Like the glueball sector, the meson sector has a Hagedorn temperature T_H, and we show that the Hagedorn temperature grows with the coupling. We calculate the temperature and coupling dependence of the free energy for temperatures below T_H. As expected, the free energy for weak coupling and low temperature grows quadratically with the temperature. Also the ratio of the free energies at strong coupling compared to weak coupling, r_{s-w}, for low temperatures grows quadratically with T. In addition, our data suggest that r_{s-w} tends to zero in the continuum limit at low temperatures.

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