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Mark Behrens* (mbehrens@math.mit.edu), Department of Mathematics, MIT, Cambridge, MA 02139. Congruences amongst modular forms and the divided beta family. Preliminary report.

Let p be an odd prime. H. Miller, D. Ravenel, and W.S. Wilson computed the 2-line of the Adams-Novikov spectral sequence converging to the p-local stable homotopy groups of spheres, and found that it was generated by elements $\beta_{i/j,k}$ for j and k satisfying some elaborate conditions (the divided β -family). I will identify a congruence condition amongst modular forms, and show that there is a one-to-one correspondence between modular forms satisfying this condition and the divided β family. I will also explain how the 1-line is related to Eisenstein series, reinterpreting a result due to A. Baker. (Received September 19, 2007)