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Yi-Zhi Huang* (yzhuang@math.rutgers.edu), Department of Mathematics, Rutgers University, 110 Frelinghuysen Road, Piscataway, NJ 08854. *Modular invariance for rational and logarithmic conformal field theories.*

In this talk, I will first give a quick review the modular invariance theorem for rational conformal field theories, including the modular invariance conjecture of Moore and Seiberg, Zhu's proof of a partial result and my proof of this conjecture of Moore-Seiberg. Then I will discuss the modular invariance for logarithmic conformal field theories, including the partial modular invariance result obtained by Miyamoto, the thesis work of Fiordalisi and a joint paper in preparation with Fiordalisi proving the modular invariance under the condition that the vertex operator algebra is positive energy, C_2 -cofinite and has no nonzero finite-dimensional modules. (Received January 20, 2016)