Representation theory of affine VOAs

An affine Lie algebra is a central extension of the loop algebra of a finite dimensional Lie algebra. The vacuum modules at any complex level k of the affine Lie algebra themselves carry an interesting algebraic structure, namely that of a vertex operator algebra (VOA). The representation theory of affine VOAs is rather rich, e.g. suitable categories of modules form ribbon categories and there are exciting connections to geometry, quantum groups, physics and much more.

I will give an overview on the state of the art in this area.