

Generalized Verma and Wakimoto Modules

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- The level $\kappa_{\text{crit}} = -\frac{1}{2}\kappa_{\text{Kil}}$ is the *critical level*.

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 - 2 Smooth representations of affine Kac-Moody algebras play a central role in the Beilinson and Drinfeld's approach to the geometric Langlands program.

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- To answer these questions, we relate Verma modules to Wakimoto modules.

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- The critical shift is a “quantum correction” arising because of normal ordering of fields.

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- Conjecture: For “generic” values of Λ , the morphism $\mathbb{M}_{\kappa_{\text{crit}}}(\Lambda) \rightarrow \mathbb{W}_{\kappa_{\text{crit}}}(\Lambda)$ is an isomorphism.
- Evidence for the conjecture:
 - 1 If $n = 1$, this is a theorem of Frenkel.
 - 2 In characteristic p , this is a theorem of Bernstein, Bushnell, Kutzko, Roche,

- Relationship between generalised Verma and Wakimoto modules:
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- Thank you!