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Angelo Bianchi and **Evan Wilson***, 415 Harrisburg Ave, Lancaster, PA. *Gröbner basis for local Weyl modules for the hyper and truncated current \mathfrak{sl}_2 -algebras.*

We use the theory of Gröbner bases for ideals to construct linear bases for graded local Weyl modules for the (hyper) current and the truncated current algebras associated to the finite-dimensional complex simple Lie algebra \mathfrak{sl}_2 .

The main result is a characteristic-free construction of a linear basis for this important family of modules for the hyper current \mathfrak{sl}_2 -algebra. In the positive characteristic setting this work represents the first construction giving an expected basis. In the characteristic zero setting, it results in a different construction of the basis obtained by Chari and Pressley and also in the construction of a new basis for local Weyl modules for the current \mathfrak{sl}_2 -algebra which allows us to obtain a basis for the local Weyl modules for truncated current \mathfrak{sl}_2 -algebras. (Received August 25, 2016)