

1049-17-47

Ya. S. Krylyuk* (krylioukiaroslav@deanza.edu), 21250 Stevens Creek Boulevard, Cupertino, CA 95014. *The enveloping algebra of the Petrogradsky-Shestakov-Zelmanov algebra is not graded-nil in critical characteristics.* Preliminary report.

Generalizing Petrogradsky's construction, I.P. Shestakov and E. Zelmanov gave an example of a two-generated infinite-dimensional nil Lie algebra of finite Gelfand-Kirillov dimension over any field of positive characteristic. For "generic" characteristics of a ground field the algebra is graded by free abelian group of rank two. This grading collapses for the characteristics, which we call the critical ones. We prove that in the critical characteristics the enveloping algebra of the Petrogradsky-Shestakov-Zelmanov algebra is not graded-nil. (Received February 15, 2009)