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**Anthony Giaquinto, Aaron Lauve\*** (lauve@math.luc.edu) and **John Versnel**. *The Spectra of Principal Elements in Frobenius Seaweed Lie Algebras*. Preliminary report.

A Lie algebra  $\mathfrak{L}$  is *Frobenius* if there exists a functional  $f \in \mathfrak{L}^*$  satisfying: if  $f([a, b]) = 0$  for all  $b$ , then  $a = 0$ . Such nondegenerate  $f$  establish an isomorphism between  $\mathfrak{L}$  and  $\mathfrak{L}^*$ . Let  $\hat{f}$  denote the corresponding element of  $\mathfrak{L}$ . It seems that the spectrum of  $\text{ad } \hat{f}$  is an invariant of  $\mathfrak{L}$ , i.e., independent of which (nondegenerate)  $f$  is originally chosen. Even more startling, the spectrum is an unbroken string of integers of the form  $(-n, -n+1, \dots, 0, 1, \dots, n+1)$ . (One could try quoting the theory of semisimple Lie algebras as an explanation, except that Frobenius Lie algebras are not semisimple.) In this talk, we give a proof for maximal parabolic subalgebras of  $\mathfrak{sl}_n$  and outline a strategy to handle the Frobenius “seaweed Lie algebras” of Dergachev–Kirillov (2000). (Received January 14, 2012)