1125-17-2575　　　　　**Ben Lewis Cox*** (`coxbl@cofc.edu`), Charleston, SC , and **Kaiming Zhao**, , Canada. *Certain families of Polynomials arising in the study of hyperelliptic Lie algebras.*

The associative ring $R(P(t)) = \mathbb{C}[t^{\pm 1}, u \mid u^2 = P(t)]$, where $P(t) = \sum_{i=0}^{n} a_i t^i = \prod_{k=1}^{n}(t - \alpha_i)$ with $\alpha_i \in \mathbb{C}$ pairwise distinct, is the coordinate ring of a hyperelliptic curve. The Lie algebra $\mathrm{Der}\,(R(P(t)))$ of derivations is called the hyperelliptic Lie algebra associated to $P(t)$ and they are a particular type of Krichever-Novikov algebra. In this talk we describe the universal central extension of $\mathrm{Der}\,(R(P(t)))$ in terms of certain families of polynomials which in a particular case are associated Legendre polynomials. In our description of these families of polynomials, we employ the use of Fáa di Bruno's formula (or Arbogast's formula) and Bell polynomials. (Received September 20, 2016)