1154-17-355 **Matt Szczesny*** (szczesny@math.bu.edu), **Jackson Walters** and **Brian Williams**.

"Holomorphic fibrations, factorization algebras, and toroidal vertex algebras".

Let X be a complex manifold, $\pi : E \to X$ a locally trivial holomorphic fibration with fiber F, and $\mathfrak{g}$ a Lie algebra with an invariant symmetric form. We associate to this data a holomorphic prefactorization algebra $\mathcal{F}_{\mathfrak{g},\pi}$ on X in the formalism of Costello-Gwilliam. When $X = \mathbb{C}$, $\mathfrak{g}$ is simple, and F is a smooth affine variety, we extract from $\mathcal{F}_{\mathfrak{g},\pi}$ a vertex algebra which is a vacuum module for the universal central extension of the Lie algebra $\mathfrak{g} \otimes H^0(F, \mathcal{O})[z, z^{-1}]$. As a special case, when F is an algebraic torus $(\mathbb{C}^*)^n$, we obtain a vertex algebra naturally associated to an $(n+1)$–toroidal algebra, generalizing the affine vacuum module. (Received September 02, 2019)