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Fan algebras. Preliminary report.

Let \mathcal{F} be a fan in \mathbb{R}^m , f_1, \dots, f_n a family of fan-linear maps on \mathcal{F} , and I_1, \dots, I_n ideals in a commutative ring R . Fan algebras are R -algebras associated to this collection of data. It is a concept that provides an interplay between the geometry and combinatorics of the fan and the algebraic properties of the ideals and the fan linear maps. In our talk, we will present some of the main properties of these algebras, focusing on their presentation ideal. We will describe their presentation ideal and free resolution when $m = 2$ and the ideals I_i , $i = 1, \dots, n$, are principal, an important case with applications to the intersection algebra of principal ideals. (Received January 17, 2016)