1172-13-63 **Ricardo Burity**, **Aron Simis** and **Stefan O Tohaneanu*** (`tohaneanu@uidaho.edu`). *On the Jacobian ideal of an almost generic hyperplane arrangement.*

Let $\mathcal{A}$ denote a rank n central hyperplane arrangement in $\mathbb{K}^n$, where $\mathrm{char}(\mathbb{K}) = 0$. Suppose $\ell_1, \ldots, \ell_m \in R := \mathbb{K}[x_1, \ldots, x_n], m \geq n$ are the defining linear forms, and let $f = \ell_1 \cdots \ell_m$ denote the defining polynomial of $\mathcal{A}$.

We investigate the relationship between two ideals associated to $\mathcal{A}$: the Jacobian ideal J_f (which is the ideal generated by the first partial derivatives of f), and the ideal $\mathbb{I}$ generated by all $(m-1)-$fold products of the distinct defining linear forms (i.e., these generators are $f/\ell_1, \ldots, f/\ell_m$).

In the main result we prove that if $\mathcal{A}$ is almost generic (i.e., any $n-1$ of the m defining linear forms are linearly independent), then J_f is a minimal reduction of $\mathbb{I}$. If $n = 3$, then any hyperplane arrangement is almost generic since any two distinct defining linear forms are linearly independent; this determine us to conjecture that the result is true regardless of the almost generic condition.

When $\mathcal{A}$ is generic, we show that $(J_f)^{\mathrm{sat}} = \mathbb{I}$. This provides a simpler proof of a conjecture due to Yuzvinsky (and proven first by Rose and Terao) that $\mathrm{depth(R/J_f)} = 0$. (Received August 16, 2021)