1172-13-170 **Michael DiPasquale** (`mdipasquale@southalabama.edu`) and **Alexandra Seceleanu*** (`aseceleanu@unl.edu`). *Duality of asymptotic invariants for families of ideals.* Preliminary report.

We propose a new notion of duality for sequences of real numbers. In general, this duality pairs a sub-additive sequence to a super-additive sequence and yields a reciprocity relation between the asymptotic growth factors of the two sequences.

This has applications to commutative algebra. Specifically, given a family of ideals $\mathcal{I} = \{I_n\}_{n \in \mathbb{N}}$ and a function f that attaches to every ideal a numerical invariant (for example, the initial degree or the Castelnuovo-Mumford regularity) one often considers the asymptotic invariant $\hat{f}(\mathcal{I}) = \lim_{n \to \infty} \frac{f(I_n)}{n}$. Using the above mentioned duality, we establish relationships between pairs of such asymptotic invariants, with particular attention to families of ideals arising from subspace arrangements in projective space. (Received August 25, 2021)