S-Logarithmic Foliations

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In this talk, we will present new families of codimension 1 singular foliations in the complex projective space, called S-logarithmic foliations. These families consist of logarithmic differential 1-forms with content (that is, logarithmic 1-forms such that their polynomial coefficients have non-constant common factors) that are divided by that content. We will study general properties of S-logarithmic foliations, focusing in a specific type of these foliations: they consist of differential 1-forms of logarithmic type with poles in two irreducible hypersurfaces of degrees k+1 and k respectively, which are divided by a linear polynomial content. In this case, we will study their geometry, singular locus, give a unirational parameterization and study their generic injectivity and Zariski derivative. Finally, we will give a general idea of the proof of the stability of these sets of S-logarithmic foliations. This gives an infinite collection of new irreducible components of the moduli space of singular foliations of codimension 1 in the projective space and also a way to generalize the so-called exceptional component.