Computing Subschemes of the Border Basis Scheme

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Border basis schemes are open subschemes covering the Hilbert scheme of points. They are given by easily computable quadratic equations. In this talk we study characterizations of algebraic and geometric properties of 0-dimensional schemes such as the Gorenstein property or the Cayley-Bacharach property. Then we apply these characterizations to compute equations for the corresponding subschemes of the border basis scheme paramatrizing all schemes with these properties. Some properties correspond to locally closed subschemes, i.e. they will be described by computing a pair of ideals.