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**Orlando B. Alonso\*** ([orlando.alonso@lehman.cuny.edu](mailto:orlando.alonso@lehman.cuny.edu)), 3635 Johnson Avenue, Apt. 3A, Bronx, NY 10463. *Deepen student understanding of mathematics using technology: Justifying a hierarchical classification of convex quadrilaterals using dynamical software.*

This presentation show how the dimension added by the capabilities of geometric dynamical software enables pedagogical approaches that enhance student conceptualization techniques and involvement in mathematics generalizations processes promoting students to fully participate in the development of the classroom mathematical discourse. The legitimization of a hierarchical (inclusive) classification of quadrilaterals is attained while distinguishing different representations of quadrilaterals involved from an exclusive conceptual perspective using virtual manipulative tools designed in a dynamical software environment leading the audience to understand how basic properties for families of convex quadrilaterals could be associated with the shape construction of members of quadrilaterals families (isosceles trapezoids, kites, and parallelograms) following a constructivist approach. The discussion focuses in an innovative system of observable features that looks for side length and angle measure patterns as classification criterion. Investigation results are recorded on a semantic feature analysis chart that enables the coexistence of inclusive and exclusive conceptualization paths to classification, which until now have competed for the available geometric terms. (Received September 26, 2017)