1086-11-1450   **Alexandru Buium*** (`buium@math.unm.edu`). *Differential lifts and differential symmetries.* Preliminary report.

Various classes of phenomena in algebraic geometry in characteristic p do not lift to algebraic geometry in characteristic zero. (Examples of such phenomena arise, for instance, in relation to modular forms or in relation to Galois theory.) However it turns out that some of these phenomena in characteristic p admit remarkable lifts to characteristic zero in "delta-geometry" (the geometry of "arithmetic differential equations"). These "differential lifts" possess certain unexpected "differential symmetries" and can be viewed as central fibers of "differential deformations". This may arguably make delta-geometry (rather than algebraic geometry) the "correct deformation theory" for many arithmetical problems. A conjectural framework and results will be presented supporting the above phenomenology. (Received September 22, 2012)