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**Donald G Palmer\*** (dgpalmer@nu11.com), Ossining, NY. *Boundary Conditions: Numeric Representation and the Boundary of Pure and Applied Mathematics.*

Being so basic to mathematics, numeric representational systems touch many areas of the discipline. Numeric systems could be said to lie on the boundary of pure and applied mathematics, providing the means to apply mathematics to the real world and to define how we manipulate numbers. The numeric system we use today is the decimal numeric system, which is a key system underlying current science and technology. This system is over one thousand years old, predating much of our science and technology. It can be argued that this mathematical tool, missing for the ancients, prevented them from attaining technology close to ours. In an analogous manner, discovering an expanded, more powerful numeric system would affect both sides of the pure/applied boundary. Being so basic to measurements, expanding the power of our numeric system could expand what we are able to measure, and hence provide a quantum leap in many areas of science. Being so basic to the concept of number, the expansion could provide new areas for theoretic mathematical investigation, potentially expanding what we think of as a number. This talk will consider characteristics of numeric representation and the potential for expanding our current systems, considering directions to work on and where this might lead. (Received September 23, 2018)