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Andrew B Vizcarra* (avizcarr@purdue.edu), Department of Mathematics, Purdue University, 150 N. University St., West Lafayette, IN 47907. *Supremum concentration inequality and modulus of continuity for generalized sub-Gaussian processes using Malliavin derivatives and generic chaining.*

We introduce the class of “sub- n th Gaussian chaos” processes as an extension of sub-Gaussian processes, which is related to the boundedness of n th Malliavin derivatives. We prove a Dudley-type inequality for these processes using iterated Malliavin derivatives and generic chaining arguments. This also translates into a Borell-Sudakov-type concentration inequality for the expected supremum. We also derive precise almost-sure uniform moduli of continuity for these sub- n th chaos processes. (Received September 19, 2007)