Behavior of Hermite and related processes with respect to the Hurst parameter

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The Hermite processes are self-similar process with stationary increments. The class of Hermite processes includes the fractional Brownian motion but it also contains non-Gaussian processes. We will discuss their asymptotic behavior with respect to the self-similarity index. We also present how some related processes, such as solution to SPDE driven by Hermite noises, behaves when the Hurst parameter approaches the critical values.