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Genady Ya Grabarnik* (genadyg@hotmail.com), IBM TJ Watson Reserach Center, Hawthorne, NY 10532, and **Larisa Shwartz**, IBM TJWatson Reserach, 19 Skyline dr, Hawthorne, NY 10532. *Non-Commutative majorant ergodic theorem for sub-sequences.*

The aim of the paper is to extend results of the Burgain about pointwise convergence of the non-standard ergodic averages (squares) to the case of automorphism of the Hilbert space with cone.

We establish a majorant theorem for the averages over squares. As a consequence of the theorem we show pointwise (or some variant of it) for the case of automorphism acting on von Neumann algebras, operator spaces, etc.

Goldstein, M.S.; Grabarnik, G.Ya., Almost Sure Convergence Theorems in von Neumann Algebras., Israel J. Math., V. 76, 1991, No. 1-2, pp. 161–182. (Received September 16, 2008)