Concentration of weakly dependent
Banach-valued sums and applications to
kernel learning methods

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Abstract: We obtain a new Bernstein-type inequality for sums of Banach-valued random variables satisfying a weak dependence assumption of general type and under certain smoothness assumptions of the underlying Banach norm. We use this inequality in order to investigate statistical rates of convergence for the broad family of spectral regularization methods for reproducing kernel decision rules, when trained on a sample coming from a \( \tau \)-mixing process.

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