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Due to the hiring of Dr. K. Pankrashkin on a "Maître de conférence" permanent position at the Univeristé Paris 11, Orsay, the project was terminated five months after its beginning. Nevertheless this short period enabled the team to undertake work that was actually completed after the project termination. Let me describe this work briefly.

In the paper [1], the spectral properties of the Laplacian on a class of quantum graphs with random metric structure are studied. Namely, we consider quantum graphs spanned by the simple $\mathbb{Z}^d$-lattice with δ-type boundary conditions at the vertices, and we assume that the edge lengths are randomly independently identically distributed. Under the assumption that the coupling constant at the vertices does not vanish, we show that the operator exhibits the Anderson localization near the spectral edges situated outside a certain forbidden set.

In the paper [2], Dr K. Pankrashkin studies quantum graphs corresponding to isotropic lattices with quasiperiodic coupling constants given by the same expressions as the coefficients of the discrete surface Maryland model. The absolutely continuous and the pure point spectra are described. It is shown that the transition between them is governed by the Hill operator corresponding to the edge potential.

References

[1] Frédéric Klopp and Konstantin Pankrashkin. Localization on quantum graphs with random edge lengths. *Lett. Math. Phys.*, 87(1-2):99–114, 2009.

[2] Konstantin Pankrashkin. Quasiperiodic surface Maryland models on quantum graphs. *J. Phys. A*, 42(26):265304, 13, 2009.