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Daniel Toundykov* (dtoundykov2@math.unl.edu), 203 Avery Hall, P.O. Box 880130, Lincoln, NE 68588, and **Irena Lasiecka**. *Well-posedness and trace regularity of a plate equation with non-dissipative boundary conditions*. Preliminary report.

This work addresses well-posedness of a plate equation subject to non-dissipative boundary conditions, such as, for instance, the bending moment velocity feedback. Boundary dynamics of this type destroys the natural dissipativity of the evolution generator, rendering the standard semigroup methods inapplicable. In order to establish existence of solutions one requires at least some a priori bounds on the energy of the system. The energy estimates are obtained by microlocally decomposing the trace terms into a “monotone” part plus a perturbation, which is partially smoothed out by the parabolic factor (on the microlocal scale) of the interior dynamics. Challenges arise from the complexity of the symbols corresponding to the boundary operators, and lack of control on tangential components of the traces. The latter is handled by introducing a suitably constructed auxiliary “correcting” feedback. (Received August 25, 2008)