From an abstract second-order differential system to a semigroup

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We study second-order differential systems involving sesquilinear forms as coefficients, which arise in the study of vibrational systems. We show how to translate these systems into linear Cauchy problems, and we solve them in terms of the semigroup theory. In particular, we show that, in the general case, the infinitesimal generator of the corresponding semigroup cannot be written as a block operator matrix, but its inverse can.

The talk is based on a joint work with A. Suhadolc and K. Veselić.