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In this talk, we consider ordinary differential expressions  $\ell[\cdot]$  in the Hilbert-Sobolev space generated by the inner product

$$(f, g)_1 = \int_I f \bar{g} + \int_I f' \bar{g}'.$$

In particular we find the explicit formula for the adjoint  $\ell^+[\cdot]$ , which we call the Lagrange-Sobolev adjoint, of  $\ell[\cdot]$  in this space. Furthermore, we characterize all differential expressions  $\ell[\cdot]$  that are Lagrange-Sobolev symmetric in the sense that  $\ell[\cdot] = \ell^+[\cdot]$ . This work was motivated by the example given in [1] in which a fourth-order differential expression is produced that is not Lagrange symmetric in the classical sense but it generates a self-adjoint operator in a certain Hilbert-Sobolev space. Several examples will be considered to illustrate the main results.

[1] *Self-adjoint operators generated from non-Lagrangian symmetric differential equations having orthogonal polynomial eigenfunctions*, (with W.N. Everitt, K.H. Kwon, J.K. Lee, and S.C. Williams), **Rocky Mountain J. Math.**, 31(3), 899-937, 2001. (Received February 14, 2007)