Let \( \{P_n(x)\}_n \) be the sequence of the monic orthogonal polynomials satisfying the recurrence \( P_{n+1}(x) = (x - \beta_n)P_n(x) - \gamma_nP_{n-1}(x) \), \( n \geq 1, \gamma \neq 0 \), \( P_0(x) = 1 \), \( P_1(x) = x - \beta_0 \). The associated orthogonal polynomials \( P^{(r)}_n(x) \) of order \( r \) are defined by the shifted recurrence obtained by substituting \( n \) with \( n + r \) in \( \beta \) and \( \gamma \). In this paper the authors give a fourth-order difference equation which holds for all integer \( r \) and for all classical discrete orthogonal polynomials. The coefficients of this equation are given in terms of the polynomials \( \sigma(x) \) and \( \tau(x) \) which appear in the second-order difference equation \( \sigma(x)\nabla \Delta y(x) + \tau(x)\Delta y(x) + \lambda_n y(x) = 0 \), with \( \Delta y(x) = y(x+1) - y(x) \), \( \nabla u(x) = y(x) - y(x-1) \) and \( 2\lambda_n = -n[(n-1)\sigma'' + 2\tau'']. \)

**Luigi Gatteschi** (Torino)

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