# *D*-Structure of Aqueous Solutions of Cobalt(II) Nitrate at 298 and 323 K by X-Ray Diffraction

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**Abstract** — Aqueous solutions of cobalt(II) nitrate with 1 : 15, 1 : 25, and 1 : 40 mole ratios at 298 and 323 K were studied by the X-ray diffraction. As the solution concentration decreases, ion triads (1 : 15) pass into contact ion pairs (1 : 25) and then to independently hydrated ions (1 : 40). The structural variations are accompanied by increase in a number of water molecules in the second coordination sphere of the cations and in the hydration shell of the anions. Heating produces destruction of ion triads in the 1 : 15 solution and ion association in the 1 : 40 solution. The structure of all the solutions at 323 K is characterized by a system of contact ion pairs.