Towards a classification of CI$^{(3)}$-groups

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(joint work with Edward Dobson and Pablo Spiga)

A finite group R is called a CI$^{(k)}$-group if any two k relational Cayley structures over R are isomorphic iff they are isomorphic by an automorphism of R. An intensive study of CI$^{(2)}$-groups had started with Ádám's conjecture posed in 1967. In 1977 Babai proposed a group theoretical approach to a classification of CI$^{(k)}$-groups for arbitrary $k \geq 2$. Using this approach P.Pálfy classified all CI$^{(k)}$-groups with $k \geq 4$ in 1987. While a classification of CI$^{(2)}$-groups was a very popular topic, CI$^{(3)}$-groups were rather untouched till 2003 when E. Dobson started to investigate the problem seriously. In my talk I'll report the recent results regarding classification of CI$^{(3)}$-groups.