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Generating functions method for constructing new iterations

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In this paper we propose a generating function's method for constructing new two and three-point iterations with p ($3 \le p \le 8$) order of convergence. This approach allows us to derive a new family of optimal order iterative methods that includes well known methods as a special cases. The necessary and sufficient conditions for p-th order convergence of proposed iterations are given in term of parameters τ_n and α_n . Several numerical results are given to demonstrate the efficiency and performance of the presented methods and compare them with some other existing methods.

Primary author: Prof. TUGAL, Zhanlav (Institute of Mathematics, National University of Mongolia)

Co-authors: Dr CHULUUNBAATAR, Ochbadrakh (JINR LIT); Dr VANDANDOO, Ulziibayar (Mongolian University of Science and Technology)

Presenter: Prof. TUGAL, Zhanlav (Institute of Mathematics, National University of Mongolia)

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