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Let consider multi-dimensional continued fractions (MDCFs) with equal variables: branched continued fractions (BCFs), two-dimensional continued fractions (TDCFs), and with unequal variables. Such MDCFs can be obtained from the formal multivariate power series. In convergence investigation of MDCFs special methods depending on the type of MDCF are used. For MDCFs with complex elements one can use the majorant method and the difference formula for approximants of the MDCF, the method, based on the Stieltjes-Vitali theorem, and the fundamental inequalities method; for MDCFs with positive elements the special inequalities are proposed. For the MDCF we have different kinds of approximants, depending on the length of branches of such fraction, appearing enough naturally. Connection between ordinary and figured approximants is also investigated for TDCFs. Despite that fact the most important criteria were proved for such fractions, the Paydon-Wall-like theorem was obtained recently. There are also many interesting unsolved problems, connecting with applying MDCFs to the number theory or find functional class of MDCFs with approximants, interpreted as multi-dimensional Pade approximants. These fractions can be applied to construction of multi-dimensional rational interpolants. (Received September 10, 2008)