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Are zeta-functions able to solve Diophantine equations?

Motivated by the question whether (some) Diophantine equations are related to special values of ζ- or L-functions, we first describe the origin of classical Iwasawa theory. Then we give a survey on generalisations of these ideas to non-commutative Iwasawa theory, a topic which has been developed in recent years by Burns, Coates, Fukaya, Howson, Huber, Kato, Kings, Ritter, Schneider, Sujatha, Weiss, . . . , and the author.