Algebraic continued fractions: the contribution of R. de Montessus de Ballore

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During the year 1902, Robert de Montessus de Ballore (1870-1937) proved his famous theorem ([3]) on the convergence of Padé's approximants of meromorphic functions ([2]). Until 1909, Robert de Montessus published works on algebraic continued fractions. We investigate the circulation of this theorem and give other results proved by Robert de Montessus. First of all, the genesis of the theorem is explained thanks to letters and first drafts that we have recovered ([1]). These letters have been adressed to Robert de Montessus by differents mathematicians. Extracts of some letters and first drafts will be done in that paper. Particularly, Henri Padé and Robert de Montessus corresponded by letter during the years 1901-1902. In a second part, we deal with authors who mention the theorem.The theorem was rapidly cited by mathematicians like Nörlund and O. Perron. Let us mention that Robert de Montessus dealt with Probabilities at the same period. But, it is quite surprising that Robert did'nt take an interest in the metric theory of continued fractions as E. Borel did. Yet, Robert de Montessus and E. Borel were in correspondance.

References

[1] Robert de Montessus de Ballore Archives (Université Pierre et Marie Curie, Paris, archiving in progress).

[2] Claude Brezinski, *History of continued fractions and Padé approximants*, Springer Verlag, Berlin, (1991).

[3] R. de Montessus de Ballore, *Sur les fractions continues algébriques*, Bull. Soc. Math. France 30 (1902), pp 28-36.