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Abstract of Doctoral Dissertation

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Title of Doctoral Dissertation

Congruence relations for p-adic hypergeometric functions $\widehat{\mathscr{F}}^{(\sigma)}_{a,\dots,a}(t)$ and its transformation formula

(p 進超幾何関数の合同関係と変数変換公式)

In the research, we introduce new kinds of p-adic hypergeometric functions and show that they have some relation with p-adic hypergeometric functions of logarithmic type defined by M. Asakura. First, we give definition of our functions and show these functions satisfy congruence relations similar to Dwork's p-adic hypergeometric functions, so they are convergent functions. Then we move on to some geometric background of these functions. Finally, we show that there is a transformation formula between our new p-adic hypergeometric functions and p-adic hypergeometric functions of logarithmic type in a particular case.

(この研究では、新しい p 進超幾何関数を導入し、それが朝倉によって定義された対数型 p 進超幾何関数と関係があることを示す。最初に、我々の新しい p 進超幾何関数の定義を行い、それが Dwork 型の合同関係を持つことを証明する。従って、この関数は収束関数である。次にその関数の幾何学的な背景を論じ、最後に、ある特別な場合に、対数型 p 進超幾何関数のと我々の p 進超幾何関数との間に変数変換公式があることを示す。)