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**Title:** A correspondence theorem for  $L$ -functions and partial differential operators

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Given an  $L$ -function  $F(s)$  from the extended Selberg class, we associate a function  $\Phi_F(x, y)$ . We show that the functions  $\Phi_F(x, y)$  are, in the general case, the analogs of the modular forms associated with the  $GL_2$   $L$ -functions. Indeed, we prove that every  $\Phi_F(x, y)$  is eigenfunction of a certain partial differential operator. Moreover, we prove a general correspondence theorem for such  $L$ -functions involving the functions  $\Phi_F(x, y)$ .

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