On the analogue of Cohen's kernel in the case of Jacobi forms

Let $f(\tau)$ be a cuspidal modular forms of integral weight k over the group $SL_2(\mathbb{Z})$.

Let $L(f;s)$ be the corresponding Dirichlet series associated to f, and $\Lambda(f;s) = (2\pi)^{-s}\Gamma(s)L(f;s)$.

The values of the analytic continuation of $\Lambda(f;s)$ at $s = n+1$ with $0 \leq n \leq k-2$ play a central role in the theory of classical modular forms. For example, such a set of values determines f completely and relates the space of cusp forms with the parabolic cohomology of the group $SL_2(\mathbb{Z})$.

For any n, the map $f \mapsto \Lambda(f;n+1)$ defines a linear functional on the space of cusp forms, and so it defines a unique cusp form $R_n(\tau)$ such that $\langle f, R_n \rangle = \Lambda(f;n+1)$ for all f, where $< \, , \, >$ denotes the Petersson inner product.

In 1981 H. Cohen gave an explicit description of $R_n(\tau)$ as a series in terms of a function closely related to the reproducing kernel of the space of cusp forms.

In this talk we will see that some analogue results hold in the case of Jacobi cusp forms over the group $SL_2(\mathbb{Z}) \ltimes \mathbb{Z}^2$. In particular, we will discuss about the Dirichlet series attached to Jacobi forms and describe the Jacobi cusp forms which play the role of Cohen's series $R_n(\tau)$ in our case.