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Note sur une forme de Jacobi méromorphe. (French. English, French summaries) [Note on a meromorphic Jacobi form]

C. R. Acad. Sci. Paris Sér. I Math. **325** (1997), *no. 5,* 455–460.

In this note $L=w_1\mathbf{Z}+w_2\mathbf{Z}$ is a lattice in $\mathbf{C}$ with $\tau=w_1/w_2\in\mathfrak{H}$ and $D_L(z,\varphi)$ is a function, periodic with period lattice L in the second variable and analytic in the first variable with normalization condition $\lim_{z\to 0} zD_L(z,\varphi)=1$, namely

$$D_L(z,\varphi)=\frac{w_2}{2\pi i}\exp\left(-\frac{u\mathrm{Re}\, v}{2\pi\mathrm{Im}\,\tau}\right)\frac{\vartheta(0)\vartheta(u+v)}{\vartheta(u)\vartheta(v)}$$

with $u=(2\pi i/w_2)z,\ v=(2\pi/w_2)\varphi$ and $\vartheta(v)$ Jacobi's triple product. Using work by Zagier and the classic Klein functions, this D_L is studied and for a lattice $\Lambda\supset L$ with $[\Lambda\colon L]=l$ the distribution relation $\sum_{t\in\Lambda/L} D_L(lz,\varphi+t)=D_\Lambda(z,\varphi)$ is proved. The authors mention that their result is connected to work by R. Schertz [J. Number Theory **39** (1991), no. 3, 285–326; MR1133558 (92j:11130)] and that, for φ a torsion point of $\mathbf{C}/L$, already known results come up.

Reviewed by *Rolf Berndt*