

PSF - Applications

— $T \sum \delta_{mT} = \sum e^{2\pi i t m/T}$.

— Classical sampling theorem :

$$\forall f \in PW_{\Omega}, \quad f = T \sum f(mT) \tau_{mT} \approx$$

uniformly and in L^2 . **LCAG**

— Euler-Maclaurin formula :

$$T \sum_0^{\infty} f(mT) = \int_0^{\infty} f(t) dt + \text{estimable error}$$

(numerical analysis).

— Jacobi formulas, e.g.,

$$\forall t > 0, \quad \vartheta(t) = \frac{1}{\sqrt{t}} \vartheta\left(\frac{1}{t}\right), \quad \vartheta(t) = \sum e^{-\pi m^2 t}$$

used in

LCG

Diffusion equations, (Selberg)

Statistical mechanics,

Elliptic and automorphic functions,

Analytic continuations of L-functions,

DeLigne's solution of Ramanujan conjecture.