Finite-energy GKP state: - position basis los)=No. Es Jez / jarz >2 Normalization envelope operator $|O_0\rangle = N_{0,0} \sum_{j \in \mathbb{Z}} \sum_{n=0}^{\infty} |n\rangle \times \langle n|\hat{E}_0|_j \Im \pi \rangle$ = No,0 & cn h> where $c_n = \sum_{i \in \mathbb{Z}} \langle n | \hat{\mathcal{E}}_{\Delta} | j \partial \sqrt{n} \rangle$ Taking a Coussian envelope for concreteness, É = = 0° n Cn=e [[(n|jdr) Looking back into QM class, we have $\langle n|x \rangle = (\partial^{1} n! \sqrt{R})^{-\frac{1}{2}} e^{-\frac{1}{2} \frac{1}{2}} H_{n}(x) = \partial^{2} \pi (\partial^{1} n! \sqrt{R})^{-\frac{1}{2}} e^{-\frac{1}{2} \frac{1}{2}} (\partial^{1} n! \sqrt{R})^{-\frac{1}{2}}$ In practice you can truncate the j sum after finite number of peaks, jE[-10,10]

Because of symmetry, we know that $C_n = 0$ for n odd, so that saves time. Also, $H_{dn}(x) = H_{dn}(-x)$ for even Hermite function, so that

$$|O_{\Delta}\rangle = \left(\sum_{n=0}^{\infty} C_{\partial n} |\partial_{n}\rangle\right) \cdot u_{i}t()$$

$$C_{\partial n} = \frac{e^{-\Delta^{2}\partial n}}{2^{N}\sqrt{\partial n}!} \times \left\{H_{\partial n}(0) + \partial \sum_{j=1}^{\infty} e^{-j2\partial n} H_{\partial n}(j2)\right\}$$

You just need to be careful with numerical issues in the factorial