

some  $p_0 > 0$  (in fact, a whole interval) leading to a frame.

*Theorem 2.5:* If

$$1) \quad m(g; q_0) = \operatorname{ess\,inf}_{x \in [0, q_0]} \sum_n |g(x - nq_0)|^2 > 0 \quad (2.3.11)$$

$$2) \quad M(g; q_0) = \operatorname{ess\,sup}_{x \in [0, q_0]} \sum_n |g(x - nq_0)|^2 < \infty \quad (2.3.12)$$

and

$$3) \quad \sup_{s \in \mathbb{R}} \left[ (1 + s^2)^{(1+\epsilon)/2} \beta(s) \right] = C_\epsilon < \infty \quad \text{for some } \epsilon > 0$$

where

$$\beta(s) = \sup_{x \in [0, q_0]} \sum_{n \in \mathbb{Z}} |g(x - nq_0)| |g(x + s - nq_0)| \quad (2.3.13)$$