

## Energy Signal:

**Definition 11.25** Let  $g_1(t)$  and  $g_2(t)$  be a pair of energy signals. The **cross-correlation function** for  $g_1(t)$  and  $g_2(t)$  is defined as

$$R_{12}(\tau) = \int_{-\infty}^{\infty} g_1(t)g_2(t - \tau)dt.$$

**Proposition 11.26** For a pair of energy signals  $g_1(t)$  and  $g_2(t)$

$$R_{12}(\tau) \rightleftharpoons G_1(f)G_2^*(f),$$

where  $G_2^*(f)$  denotes the complex conjugate of  $G_2(f)$ .