

# Frames

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## Frame operator

Frame operator defined as

$$F * v = \sum_k \langle v | b_k \rangle * b_k$$

- The set of  $b_k$  may be finite
- Continue list...

Follows from the definition

$$\langle F * u | v \rangle = \langle u | F * v \rangle, u, v \in V$$

## Dual frame

$$\hat{b} \sim \dots$$

## Bases and frames

If  $b_k$  does not span  $V$ , there exists a  $v \in V$  that is orthogonal to all  $b_k$

$$\sum_k |\langle v | b_k \rangle|^2 = 0$$

## Tight frames

## Matrix formulation

Frame operator

$$F = BB^*G_0$$

## Reconstructing coefficients

$$v = Bc, B \text{ is frame, } c \text{ reconstructing coefficients}$$