DEPLOYING JOINT BEAM HOPPING AND PRECODING IN MULTIBEAM SATELLITE NETWORKS

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Abstract
– Beam Hopping to increase satellite flexibility and better fit the irregular traffic demand.
– Precoding optimizes per beam power allocation considering traffic demands weights to manage interference.

System Decrption and BH scheme

**Assumptions**
- N: number of satellite feeds
- K*: number of active beams at the time instant t
- K*: number of non active beams t

At each time instant t, single or multiple users terminal can be served in each active beam.

**Notation**
- y(t) = H(t)x(t) + n(t): Received Signal
- H(t) = D(t)G(t): Channel Matrix
- x(t) = W(t)u(t): transmitted Signal
- H_−1 = H^T(t) + R^T(t)Q(t): Generalized Inverse

The ZF design of W(t) for the i-th user is equivalent to
H(t)W(t) = diag(√SINR(t)) i = 1, ..., M,
where √SINR(t) is the vector of the SINR of the users.