Re: Piecewise constant approximation

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erudite wrote:

> Let s(t) be a continuous bandlimited signal. Let p(t) be its best
> piecewise constant approximation on the uniformly partitioned unit
> interval [0,1],
>
> i.e p(t) = \sum_{i=1}^n c_i I_i(t)
>
> where I_i(t) is the indicator function which takes 1 on the interval
> [(i−1)/n , i/n) and 0 elsewhere.
>
> Now how does the MSE ||s(t)−p(t)||^2 vary with n ?
>
> Thanks,
> er

Sounds like a book exercise ? The piecewise constant signal is not BL but, if filtered properly, the original signal can be reconstructed without error.

As a first approximation, calculate the spectral energy outside the upper band limit of the original signal.

john2

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