1. Background
Higher resolution ADC is required because of large nearby interferer.

2. Filtering STF of normal Sigma-Delta Modulators
Signal Transfer Functions of normal ΣΔ-Modulators are originally low-pass filter. However, sufficient nearby interferer suppression can not be achieved because of their wide pass-band.

3. Filter Design for Notched STF
Proposed STF improvement method introduces transmission zeroes to form notched STF. It can be realized by direct feedforward paths from the input to each integrator and quantizer.

4. Circuit Design
The kT/C noise of the switched capacitor summing integrator (after the multiplication with coefficients)
\[ \frac{\sum (ET + C_y)}{\sqrt{N \sum C_y^2}} \]
kT/C noise and power consumption are minimized by maximally sharing the sampling capacitors between feedback paths and the other paths.

5. Simulation Results
Allowable interferer input level of notched STF is effectively increased.

6. Influence of Noise
In thermal noise dominated ΣΔ-Modulators, the effect of DR increase is lowered because of limited input signal amplitude and noise.

7. Measurement Results
The effect of interferer suppression can be confirmed. The IM3 from two-tone interferers is -75dB. This is almost the same level as that of normal STF designed for comparison.

8. Summary
1. Feedforward signal passes from input to each integrator can form zeroes in STF to suppress the nearby interferers strongly.
2. In thermal noise dominated ΣΔ-Modulator, the effect of DR increase is lowered because of limited input signal amplitude and noise.
3. A prototype 777-kHz BW DT 6th-order ΣΔ-Modulator has been designed and implemented in 0.18μm CMOS technology.
4. This architecture is practically effective to keep the modulator stable even when strong nearby interferers attack the receiver.