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(54) **ANALOG-TO-DIGITAL CONVERTER (ADC) ARCHITECTURES FOR HIGH RESOLUTION AND ENERGY EFFICIENCY**

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(57) **ABSTRACT**

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A low-pass and band-pass delta-sigma ( $\Delta\Sigma$ ) analog-to-digital converter (ADC) device for sensor interface is disclosed. The device includes a first stage comprising a low-resolution passive integrator-based noise-shaping successive approximation register (SAR) ADC and a second stage comprising a voltage-controlled oscillator (VCO)-ADC.

