Resonant MEMS tunable VCSEL - DTU Orbit (30/01/2019)

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We demonstrate how resonant excitation of a microelectro-mechanical system can be used to increase the tuning range of a vertical-cavity surface-emitting laser two-fold by enabling both blue- and red-shifting of the wavelength. In this way a short-cavity design enabling wide tuning range can be realized. A high-index-contrast subwavelength grating vertical-cavity surface-emitting laser with a monolithically integrated anti-reflection coating is presented. By incorporating an antireflection coating into the air cavity, higher tuning efficiency can be achieved at low threshold current. The first result shows 24-nm continuous resonant tuning range around an emission wavelength of 1060 nm with 0.9 mW output power.

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