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**Structures of cholesteric liquid crystals confined in rectangular micro-channels**<sup>1</sup> QI-HUO WEI, YUBING GUO, JIE XIANG, OLEG LAVRENTOVICH, Kent State University — When cholesteric liquid crystals are confined in various geometries, the interplays between the boundary conditions, the bulk structures and different length scales (pitch, penetration depth, and confinement size) may cause frustration and formation of intriguing topological defects and disclination lines. This paper presents our recent studies on the structures of cholesteric liquid crystals confined in rectangular microchannels with homeotropic alignments. The rectangular microchannels with various sizes and aspect ratios are made in glass substrates by using modern nanofabrication techniques. Detailed liquid crystal structures and their optical characterizations will be presented as a function of the channel depth and width.

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