Notes and Lines

Laser Action of M Centers in Lithium Fluoride
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We report the observation of room-temperature laser action at 700 nm in lithium fluoride containing M centers. LiF single crystals were pumped with a nitrogen-laser-pumped dye laser operating at 450 nm. Laser action has previously been reported in liquid-nitrogen-cooled alkali halides containing F$_{A}$(II) [1]-[3], F$_{X}$(II) [4], F$_{Y}$ [5], and F$_{2}$(II) [6] color centers.

The M center (also referred to as the F$_{2}$ center) consists of two electrons trapped by two adjacent anion vacancies. In LiF, M centers give rise to broad absorption and emission bands at 450 and 700 nm, respectively [7]. The 200-nm width of the emission band may provide a system continuously tunable from 600 to 800 nm. Heavier alkali halides, which have M-band centers, give rise to broad absorption and emission bands at 450 and 700 nm, respectively [7]. These authors make no mention of the temperature of their LiF crystal, nor do they report bleaching in their system.

REFERENCES