Electronic Supplementary Information (ESI)

Controllable synthesis of non-layered two-dimensional plate-like CuGaSe$_2$ materials for optoelectronic devices

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Fig. S1. The low and high-magnification SEM images and size distribution histograms of the CuGaSe$_2$ plates.
Fig. S2. EDX spectrum of the as-prepared CuGaSe$_2$ plates.

Table S1. Composition of Materials Calculated from Inductively Coupled Plasma Atomic Emission Spectrometry.

| Precursor atom ratio Cu:Ga:Se | Cu at% | Ga at% | Se at% | Calcd formula          |
|-------------------------------|--------|--------|--------|------------------------|
| 1:2:4                         | 25.6   | 24.9   | 49.5   | Cu$_{1.03}$GaSe$_{1.99}$ |

Fig. S3. The low and high-magnification SEM images and size distribution histograms of the Cu$_{2-x}$Se plates.
Fig. S4. The HRTEM images of the Cu$_{2-x}$Se plates.

Fig. S5. Absorption spectra of CuGaSe$_2$ plates with different concentrations and corresponding optical bandgaps.

Fig. S6. Thermogravimetric analysis of the CuGaSe$_2$ plates.