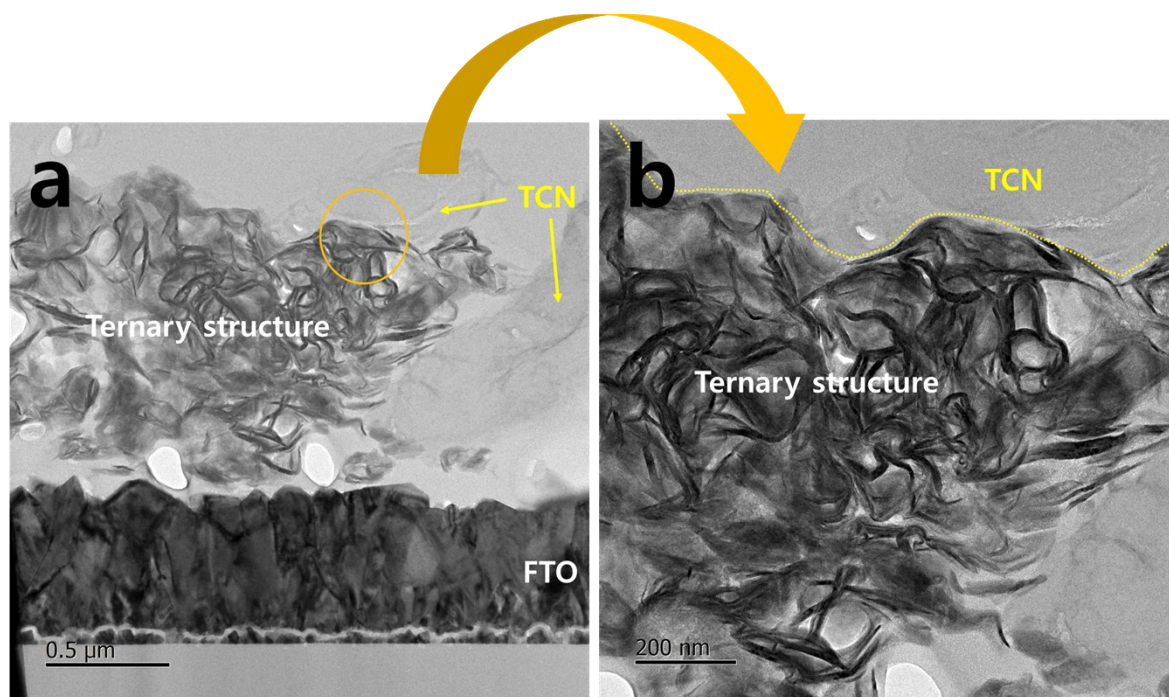
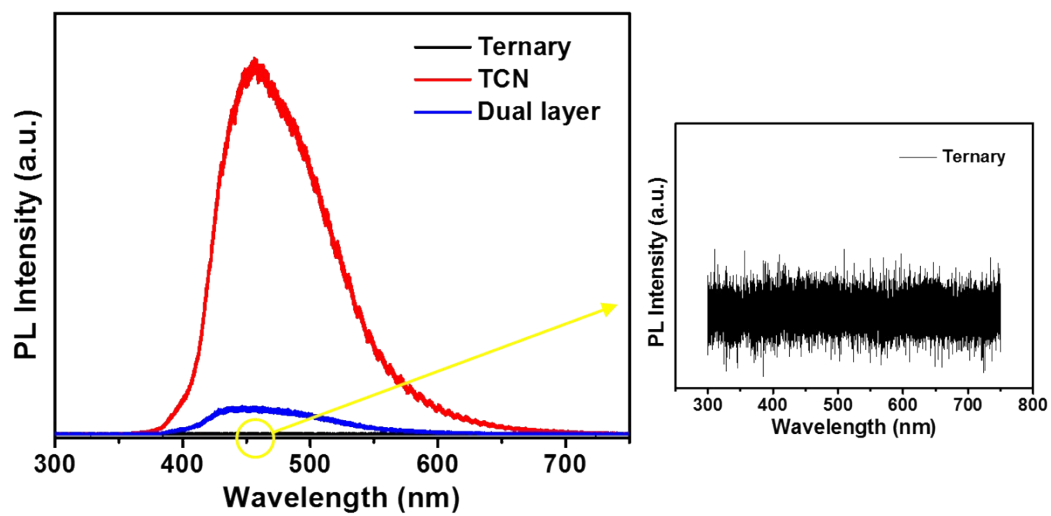


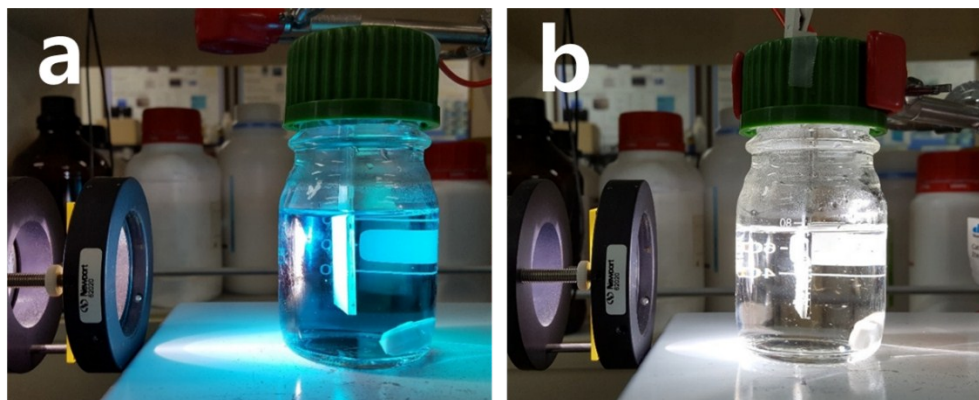
ESI 1. Cross-sectional images of dual layered film (a) after FIB and (b) magnifying the interface between ternary structures and TCN using HRTEM.



ESI 2. Photoluminescence analysis with magnification of PL intensity for ternary structures



ESI 3. Experimental set-up of (a) photodegradation activity for MB removal and (b) H₂ evolution using as-prepared films.



ESI 4. Nyquist plots of TCN film and dual layered film across the entire range.

