

Enhanced Photoluminescence of Hydrogenated Amorphous Silicon Carbide Thin Films by Means of a Fast Thermal Annealing Process

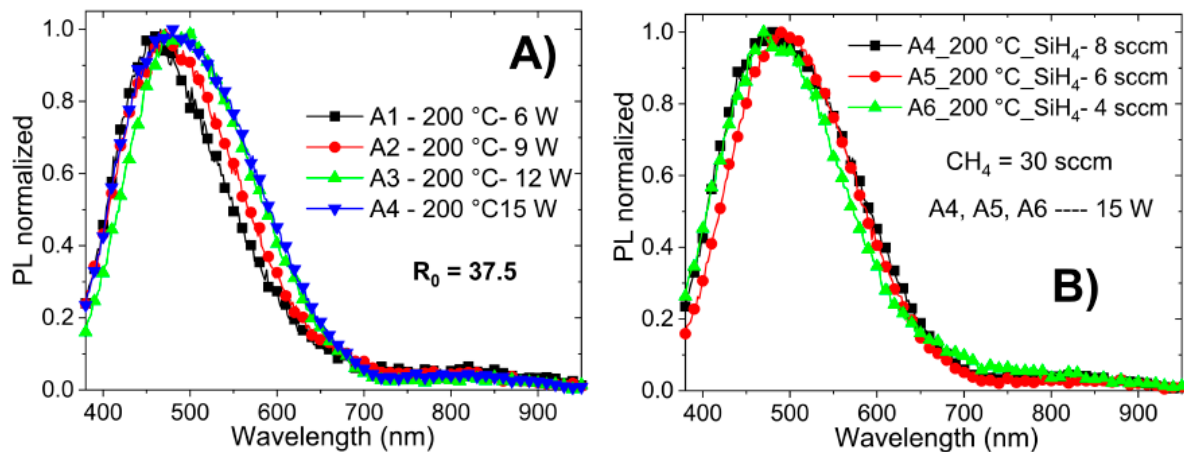


Figure S1. PL normalized of a-Si_{1-x}C_xH films annealed at 200 °C, **A)** Ratio R₀ = 37.5 with different RF power deposition from 6 to 15 W, **B)** Ratio R₀ from 37.5 to 75 with a fixed RF power at 15 W.

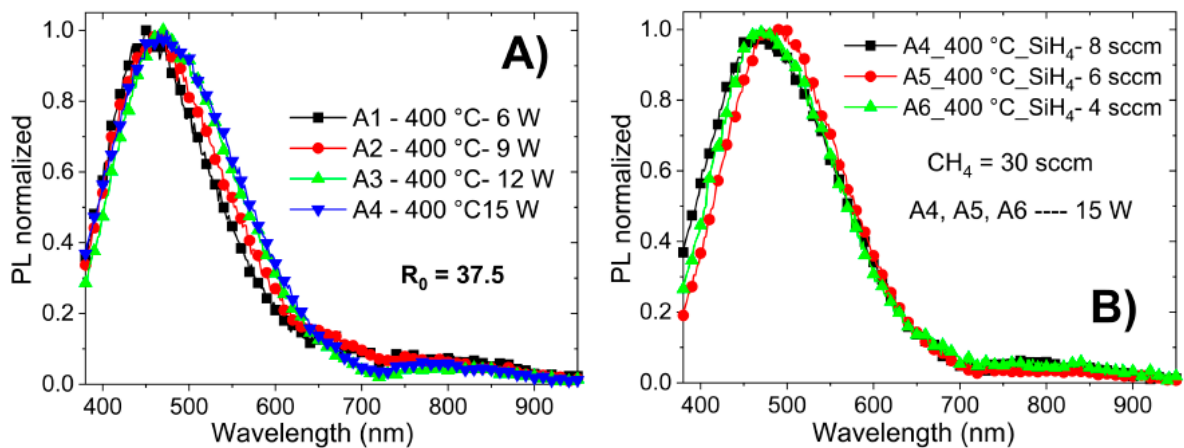


Figure S2. PL normalized of a-Si_{1-x}C_xH films annealed at 400 °C, **A)** Ratio R₀ = 37.5 with different RF power deposition from 6 to 15 W, **B)** Ratio R₀ from 37.5 to 75 with a fixed RF power at 15 W.

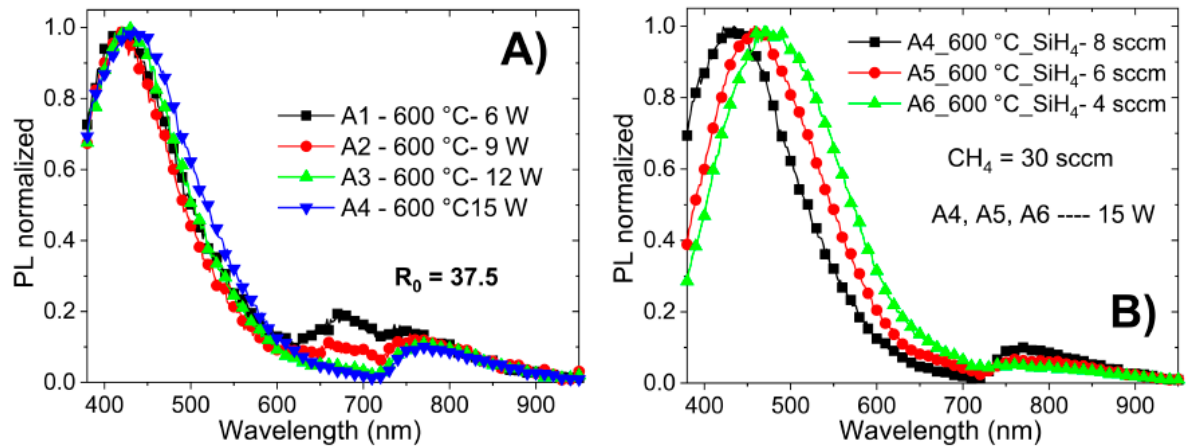


Figure S3. PL normalized of a-Si_{1-x}C_x:H films annealed at 600 °C, **A)** Ratio R₀ = 37.5 with different RF power deposition from 6 to 15 W, **B)** Ratio R₀ from 37.5 to 75 with a fixed RF power at 15 W.

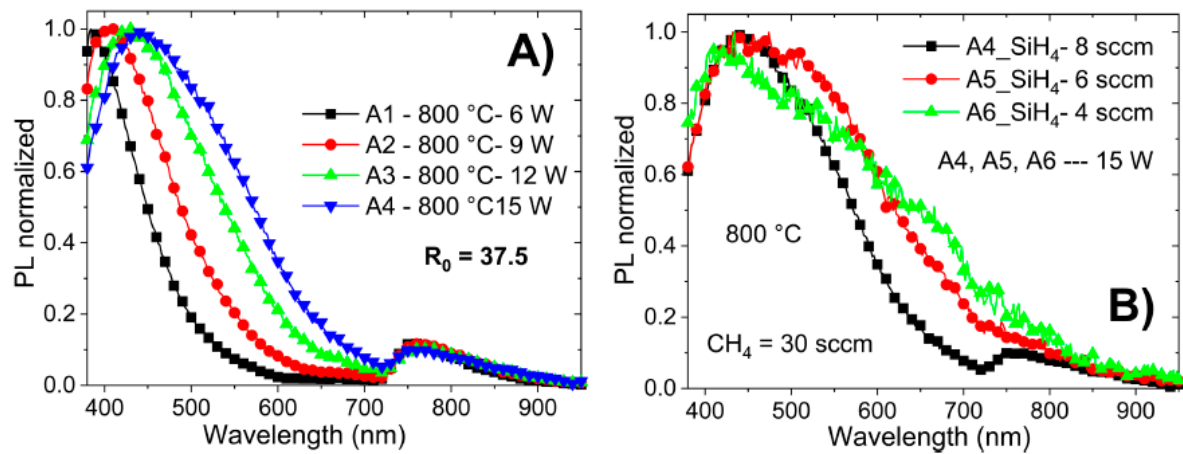


Figure S4. PL normalized of a-Si_{1-x}C_x:H films annealed at 800 °C, **A)** Ratio R₀ = 37.5 with different RF power deposition from 6 to 15 W, **B)** Ratio R₀ from 37.5 to 75 with a fixed RF power at 15 W.

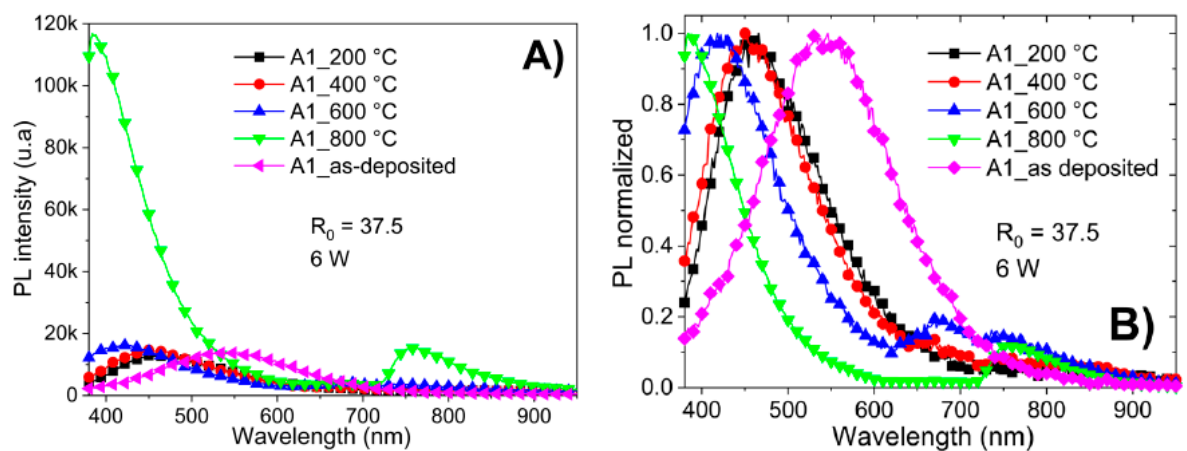


Figure S5. PL of a-Si_{1-x}C_x:H films deposited with R₀ = 37.5 ratio and 6 W of RF power, annealed at 200 °C, 400 °C, 600 °C, 800 °C, and as-deposited, **A)** without normalization, **B)** normalized.

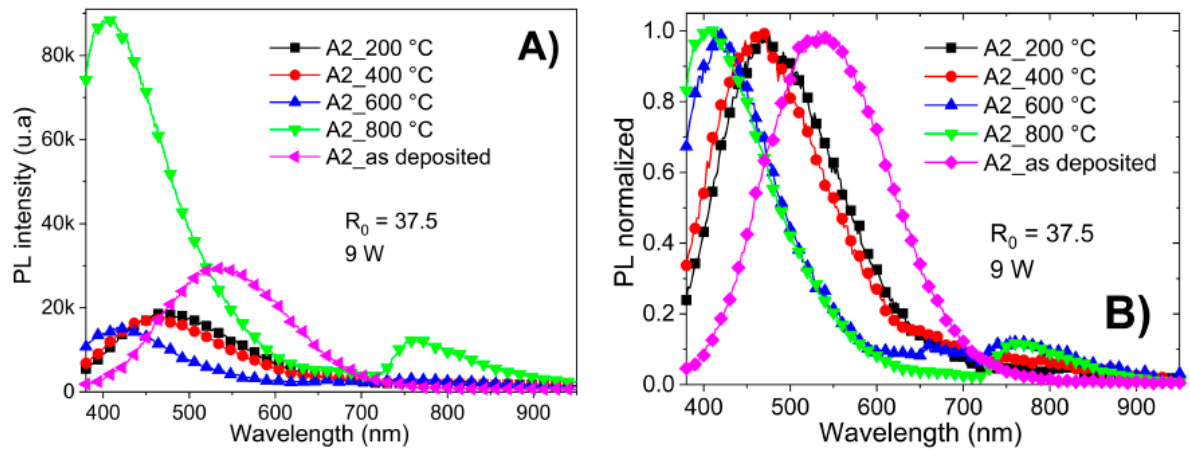


Figure S6. PL of $a\text{-Si}_{1-x}\text{C}_x\text{H}$ films deposited with $R_0 = 37.5$ ratio and 9 W of RF power, annealed at 200 °C, 400 °C, 600 °C, 800 °C, and as-deposited, **A)** without normalization, **B)** normalized.

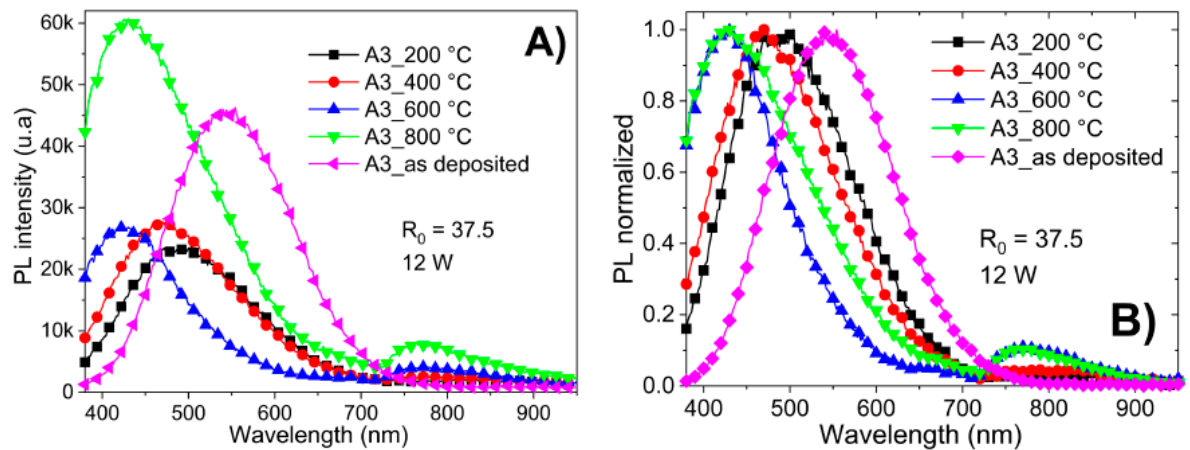


Figure S7. PL of $a\text{-Si}_{1-x}\text{C}_x\text{H}$ films deposited with $R_0 = 37.5$ ratio and 12 W of RF power, annealed at 200 °C, 400 °C, 600 °C, 800 °C, and as-deposited, **A)** without normalization, **B)** normalized.

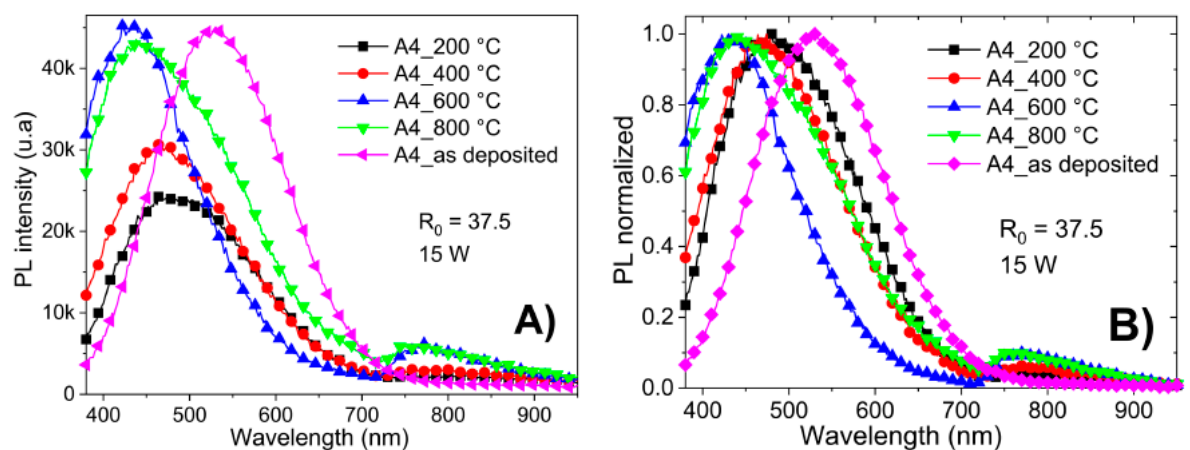


Figure S8. PL of $a\text{-Si}_{1-x}\text{C}_x\text{H}$ films deposited with $R_0 = 37.5$ ratio and 15 W of RF power, annealed at 200 °C, 400 °C, 600 °C, 800 °C, and as-deposited, **A)** without normalization, **B)** normalized.

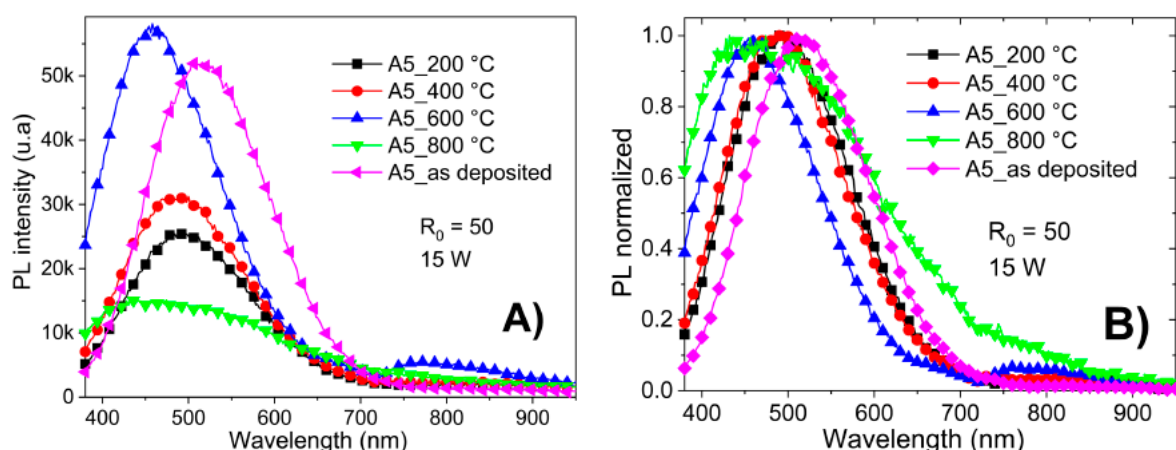


Figure S9. PL of a-Si_{1-x}C_x:H films deposited with $R_0 = 50$ ratio and 15 W of RF power, annealed at 200 °C, 400 °C, 600 °C, 800 °C, and as-deposited, **A)** without normalization, **B)** normalized.

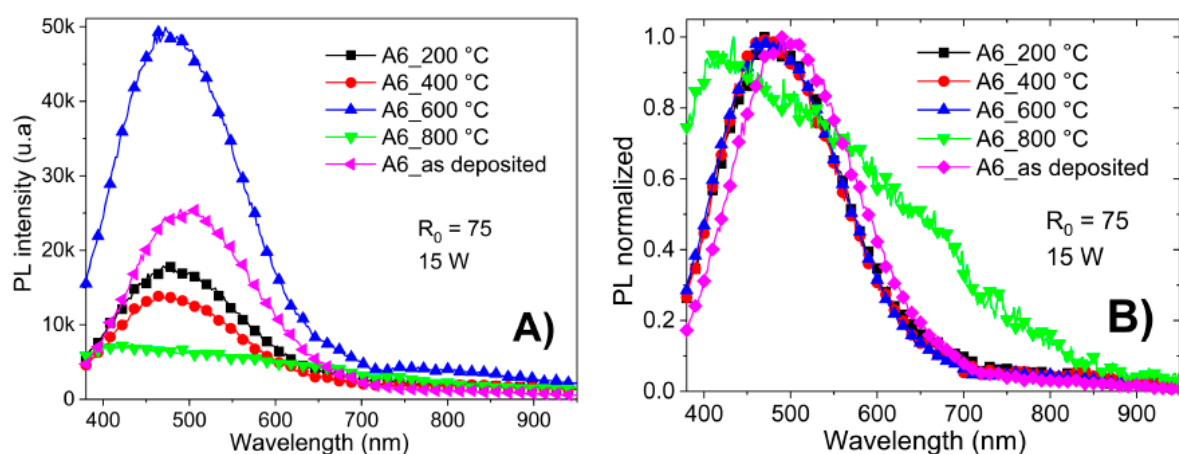


Figure S10. PL of a-Si_{1-x}C_x:H films deposited with $R_0 = 75$ ratio and 15 W of RF power, annealed at 200 °C, 400 °C, 600 °C, 800 °C, and as-deposited, **A)** without normalization, **B)** normalized.

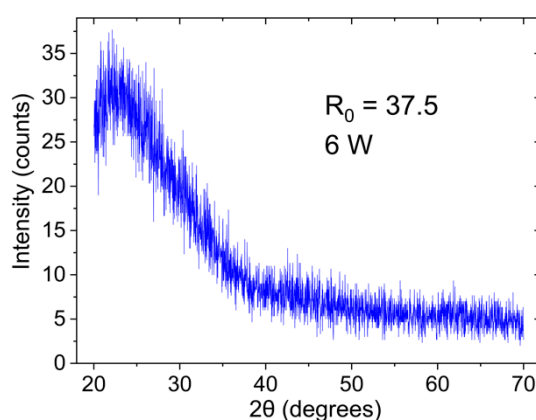


Figure S11. X-ray diffraction pattern of a-Si_{1-x}C_x:H sample deposited with $R_0 = 37.5$ ratio and 6 W of RF power after a fast annealing process at 800 °C.

