All-Inorganic HIP Multilayer With Excellent Thermostability For High-Performance Dual-Selective Radiative Cooling

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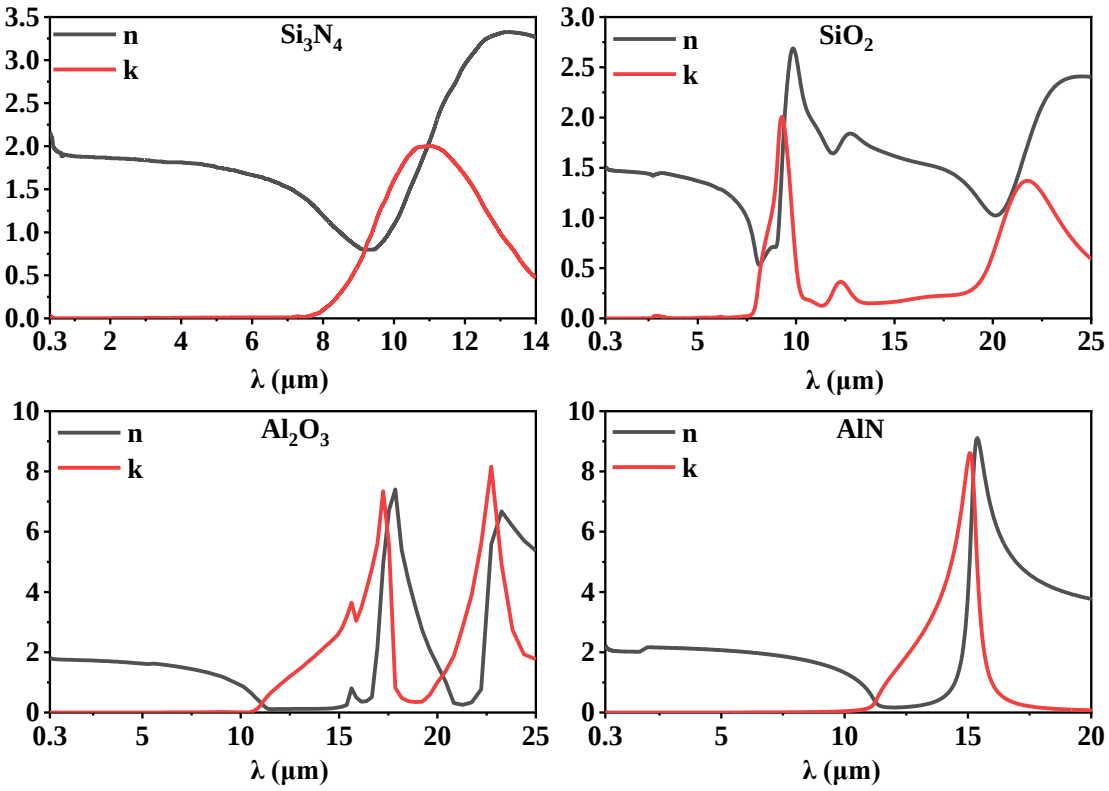

Figure S1 Optical constants (refractive index n, extinction coefficient k) of the selected dielectric materials (Si_3N_4, SiO_2, Al_2O_3, and AlN).

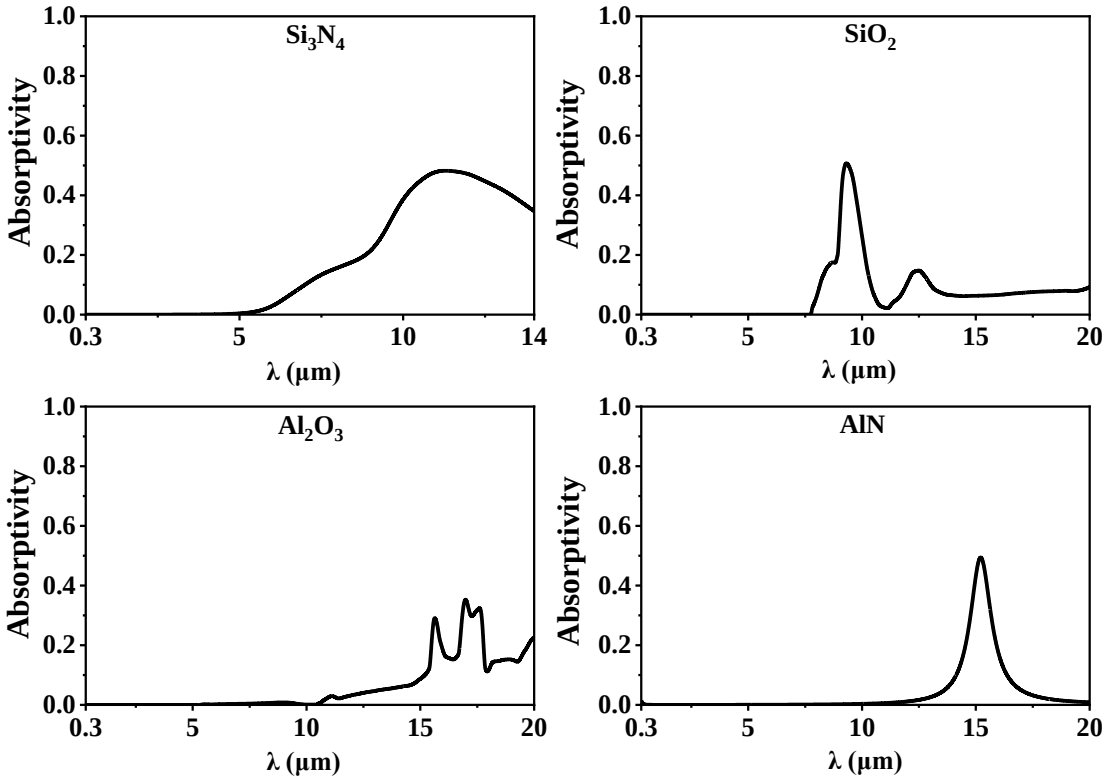

Figure S2 Corresponding absorption spectra of materials (Si_3N_4, SiO_2, Al_2O_3, and AlN), indicating their spectral response, suitability and potential for IR emission in radiative cooling applications.

Table S1 Deposition parameters of each layer material

layer	target (purity)	sputtering power (W)	Argon (sccm)	reaction gas (sccm)	deposition rate (nm/min)
Ag	Ag (>99.99wt%)	DC 100	40		136.9
AlN	Al (>99.99wt%)	RF 250	40	4 (N_2)	3.2
Al_2O_3	Al (>99.99wt%)	RF 250	50	6 (O_2)	3.57
SiO_2	Si (>99.99wt%)	RF 250	40	4 (O_2)	22.97
Si_3N_4	Si (>99.99wt%)	RF 250	50	10 (N_2)	8.83

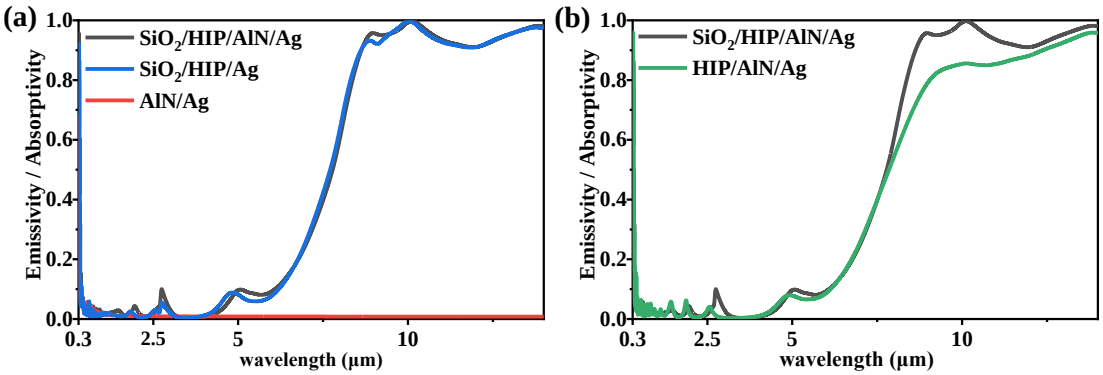

Figure S3 (a) Comparative emissivity spectra of the proposed multilayer films with and without AlN barrier and (b) with and without SiO_2 capping layer in the wavelength range of 0.3−14 μm.