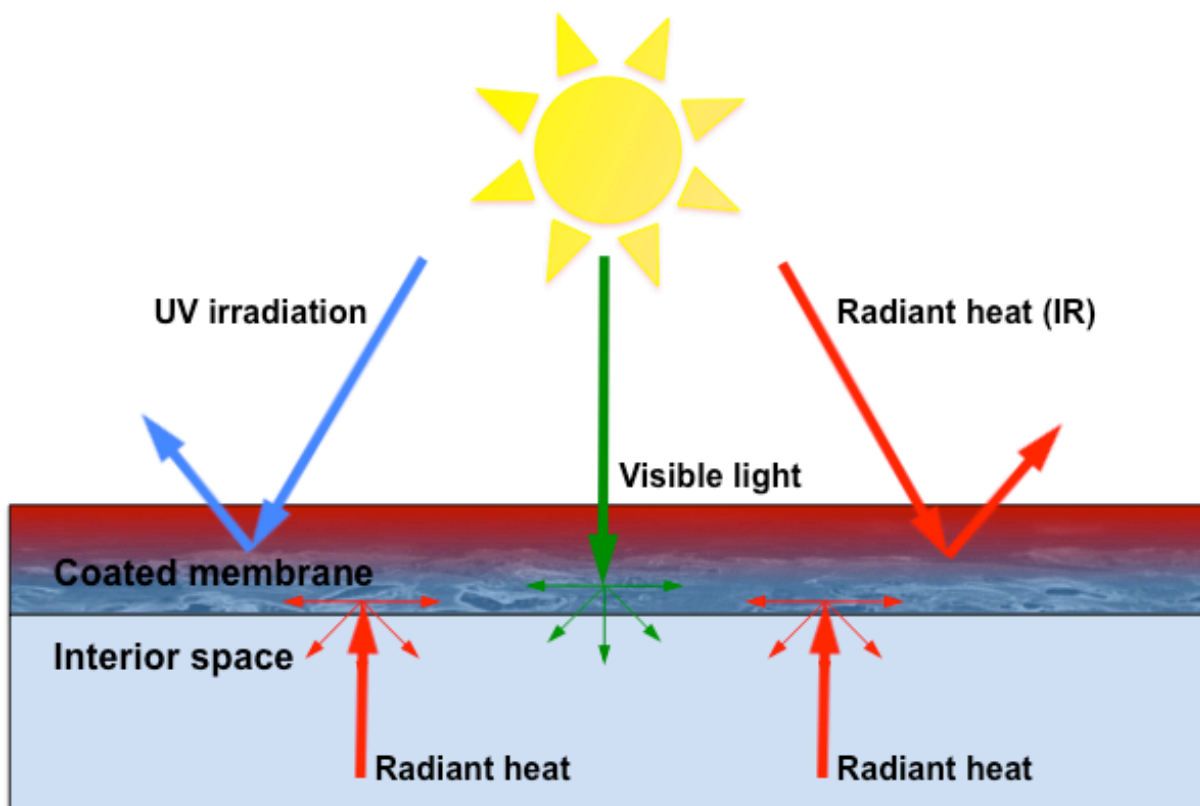


## Translucent, thermally protective polymeric coatings for textiles

Due to their lightweight construction, good compressibility and design freedom of technical textiles in construction, membranes and fabrics are used in the construction of stationary and mobile, temporary structures. If they are used as the outer barrier of a structure or as a cover for open spaces, thermal insulating properties are required in addition to weathering resistance. Currently, this is mostly implemented via air-filled membrane cushions (space-demanding, ventilation necessary), reflective metal coatings (metallic sheen) or coatings with transparent, conductive oxides (scarce raw materials). In this research project, a textile thermal protection based on porous polymers and spherical silica particles is developed. The voids in the polymer layer emit, scatter and reflect radiation in the near and mid IR range, which leads to a temperature reduction of the underlying space. This effect is to be enhanced by amorphous, spherical silica particles with a low thermal conductivity. Since the materials used allow some transmission in the visible radiation range, a darkening effect is circumvented. The use of REACH-compliant materials and the intrinsic weather-resistant and dirt-repellent properties of the polymers used make them particularly suitable for coating outer membranes.



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### Contact at DTNW:

Omid Etemad-Parishanzadeh Tel.: +49-2151-843-2027, e-Mail: etemad-parishanzadeh@dtnw.de