Photovoltaic panel pressure plate extension

Can phase change materials be used in photovoltaic (PV) modules for thermal regulation?
In recent years,the utilization of phase change materials (PCMs) in photovoltaic (PV) module for thermal regulationhas attracted wide attention in this field,as the hybrid PV-PCM technology can not only achieve higher photoelectric conversion efficiency but also make it possible to extract thermal energy stored in PCMs for cascade utilization.

What is the boundary condition of a PV panel?
For the control volume at the edge of the PV panel,the boundary condition applied is "convection +radiation". Similarly,the boundary condition at the top face of the PV panel is "convection +radiation +incident solar radiation" and that on the back face is "convection +radiation +specified heat flux in case of thermal management".

What are the cooling methods used in PV panels?
Phase change material (PCM),thermoelec. (TE) and aluminum finswere chosen as the cooling methods. The CaCl2·6H2O is chosen as one of the PCM which is widely used in the cooling of PVs and the other is the PCM with melting temp. above the surface temp. of the PV panel.

Can a single-phase coolant be used for PV panel cooling?
Finally, in the current state of the literature where the majority of the research in PV panel cooling is accomplished using a single-phase coolant, (57-64) by integration of a novel porous nanochannel (54) on the back face of a commercial PV panel, we induce multiphase cooling accompanied with a large extent of heat transfer through phase change.

Does a commercial PV panel have a good wicking characteristic?
Accordingly, we utilize the porous nanochannels device, (54) which has demonstrated excellent wicking characteristic (50,52) as well as high heat flux dissipation through nanoscale thin-film evaporation, (54) and numerically integrate it on the back face of a commercial PV panel to evaluate the extent of cooling.

Is PV panel thickness a 3D or 2D geometry?
Thus,although the computational domain is a 3D geometry,the numerical method is employed in a 2D space. Further,since there is only one grid point along the PV panel thickness,the material and thermal properties along d are assumed to be the average of the composite structure,(44,56) implying no variation of temperature along the thickness.