



HAL
open science

Two birds with one tool: using thermocompression for both metallic contact annealing and wafer bonding of GaAs solar cells

Léopold Boudier, Samuel Charlot, Jean Baptiste Doucet, Guilhem Almuneau, Inès Revol

► To cite this version:

Léopold Boudier, Samuel Charlot, Jean Baptiste Doucet, Guilhem Almuneau, Inès Revol. Two birds with one tool: using thermocompression for both metallic contact annealing and wafer bonding of GaAs solar cells. 13e edition des Journées Nationales du Photovoltaïque, Dec 2023, Dourdan, France. hal-04743735

HAL Id: hal-04743735

<https://hal.science/hal-04743735v1>

Submitted on 18 Oct 2024

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

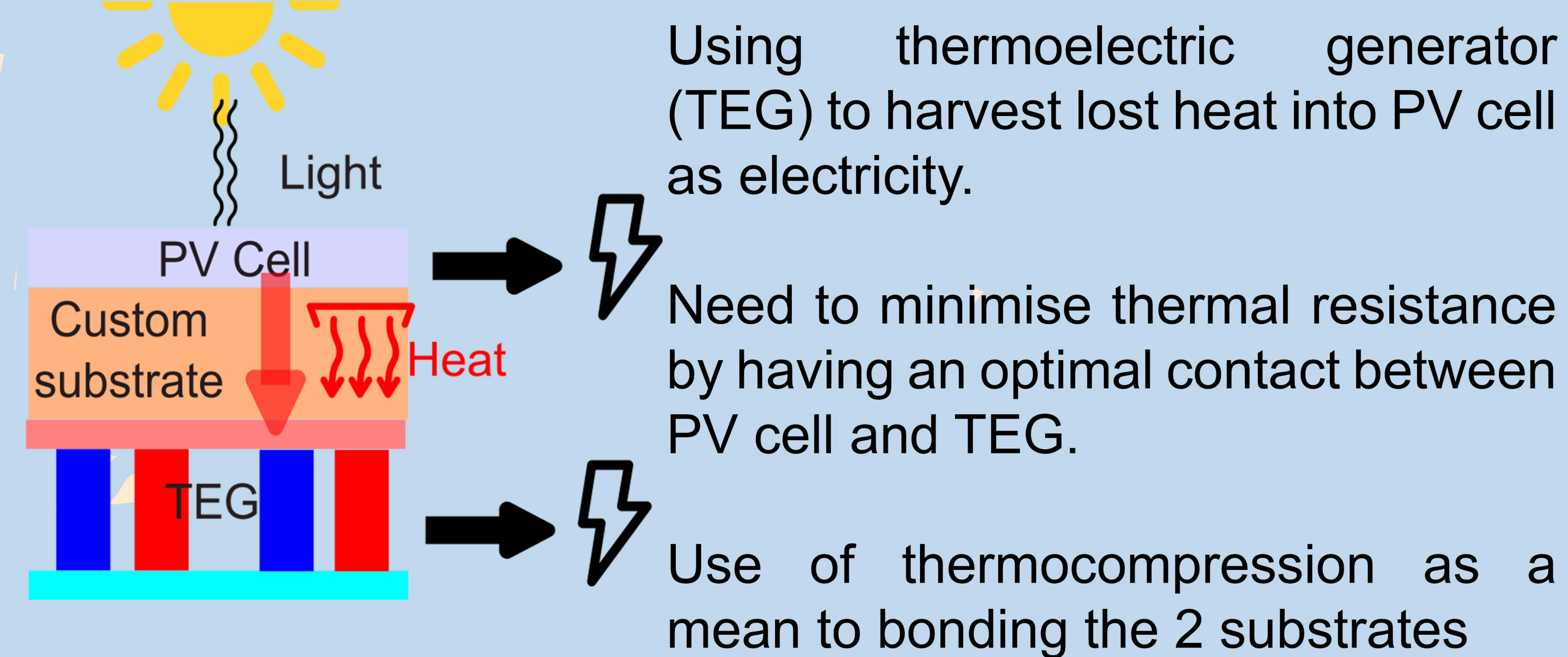
L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

Two birds with one tool: using thermocompression for both metallic contact annealing and wafer bonding of GaAs solar cells

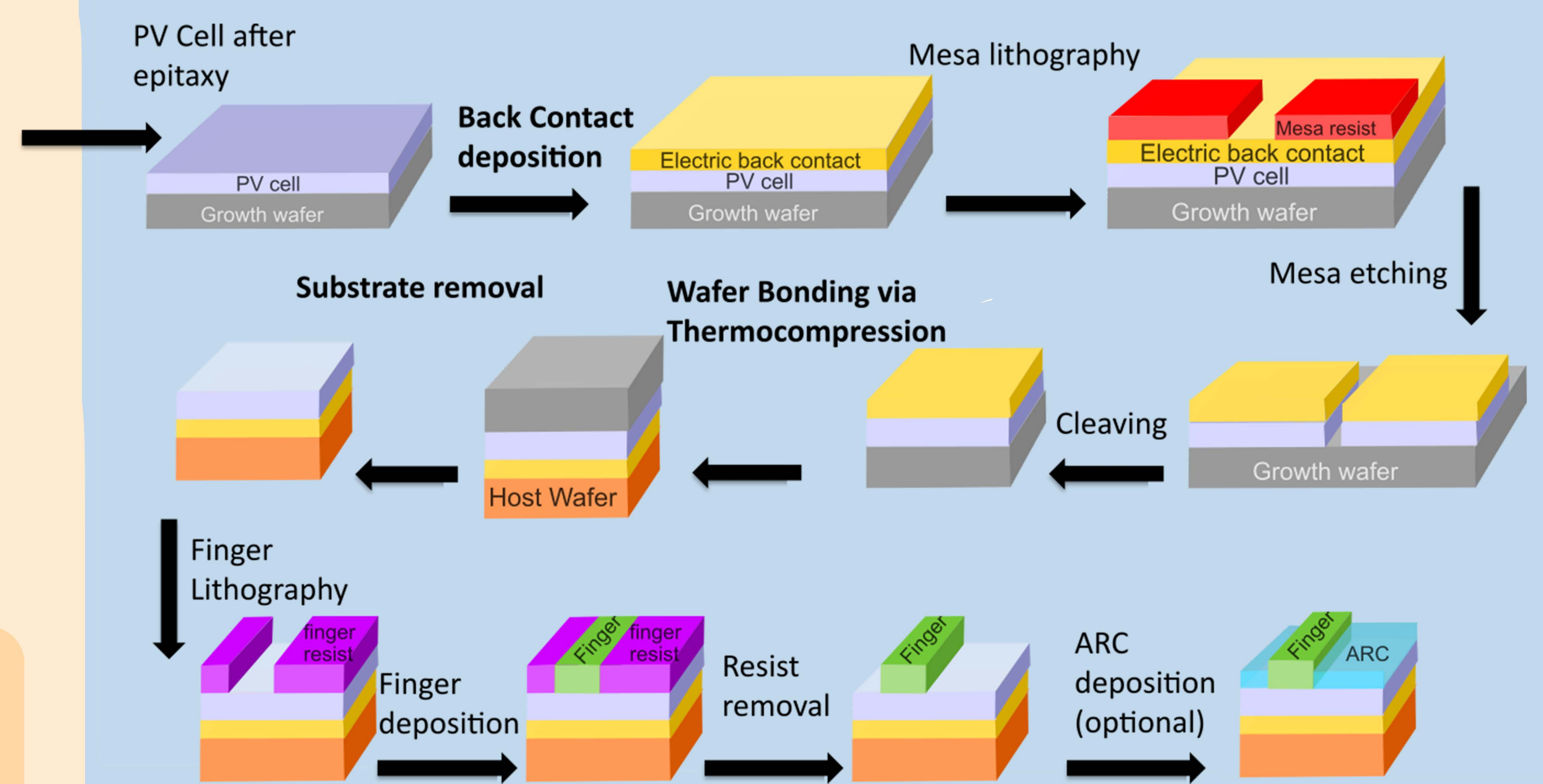
Léopold Boudier, Samuel Charlot, Jean-Baptiste Doucet, Guilhem Almuneau, Inès Revol

LAAS - CNRS, Université de Toulouse, France
leopold.boudier@laas.fr

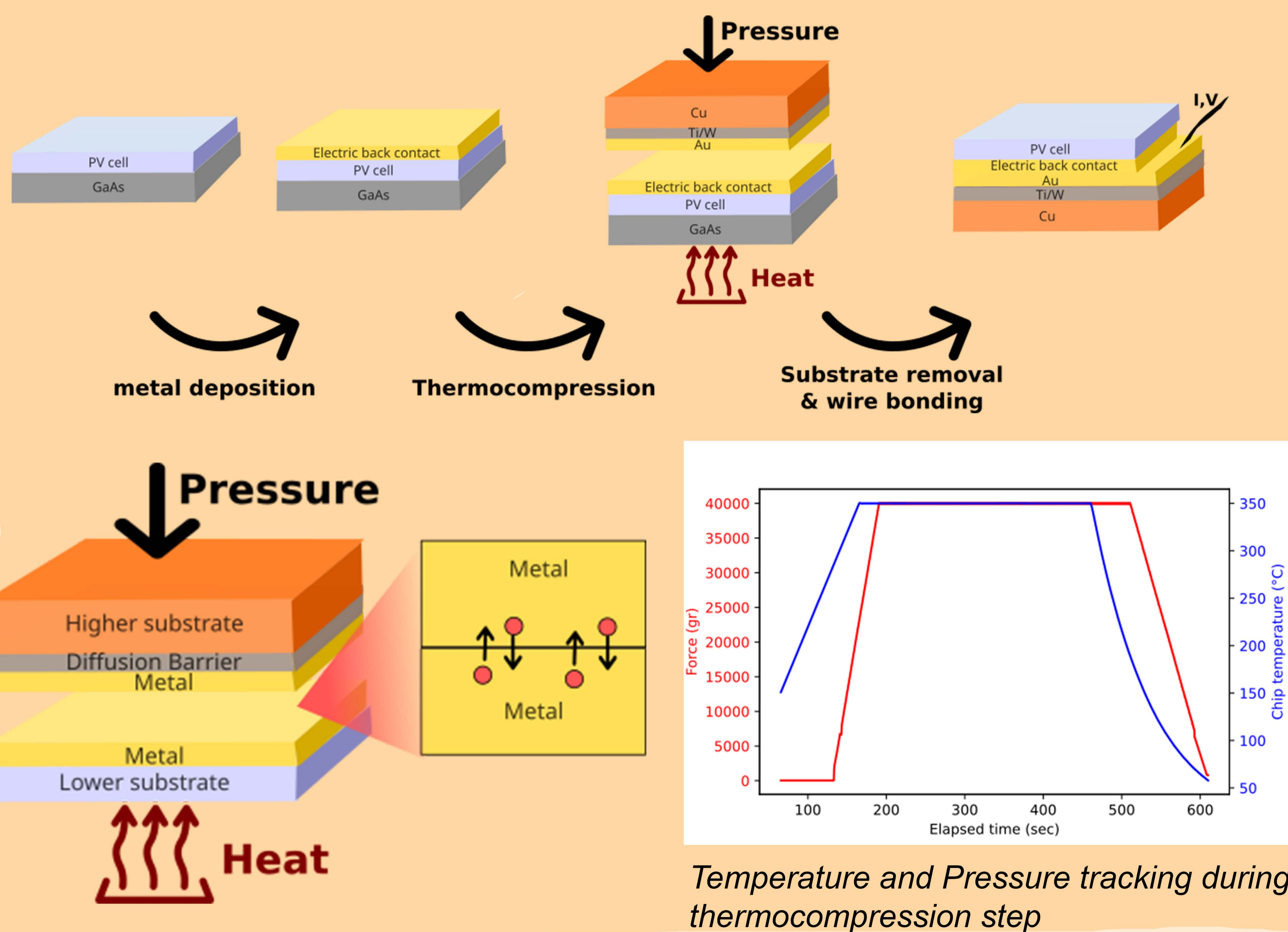
Context



The full process to transfer the cell onto the TEG



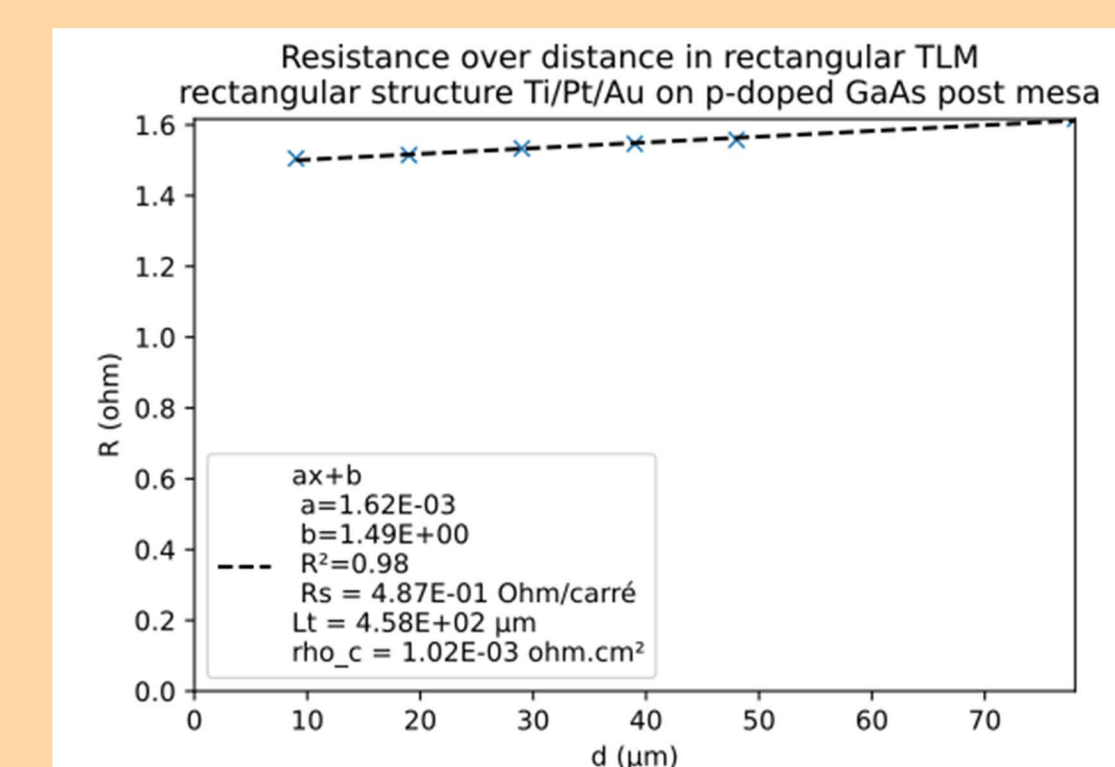
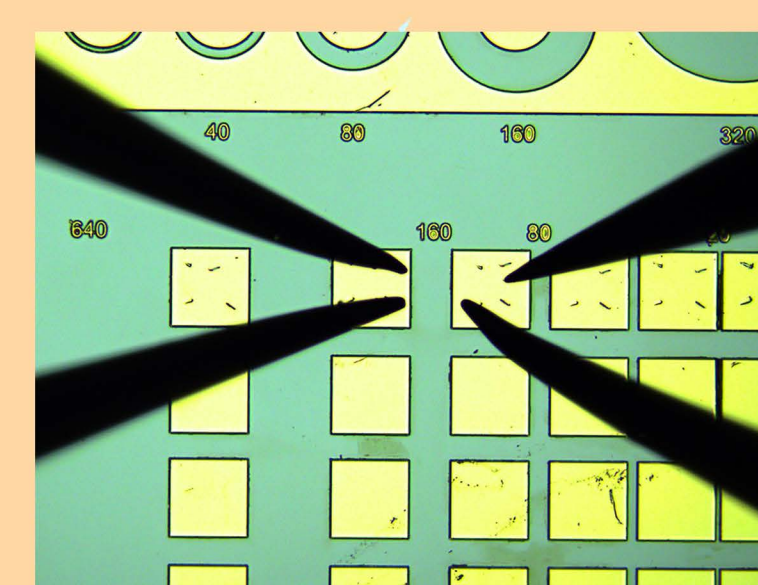
Focus on the Thermocompression



Electrical characterization

We use thermocompression to anneal the metal-semiconductor contact.

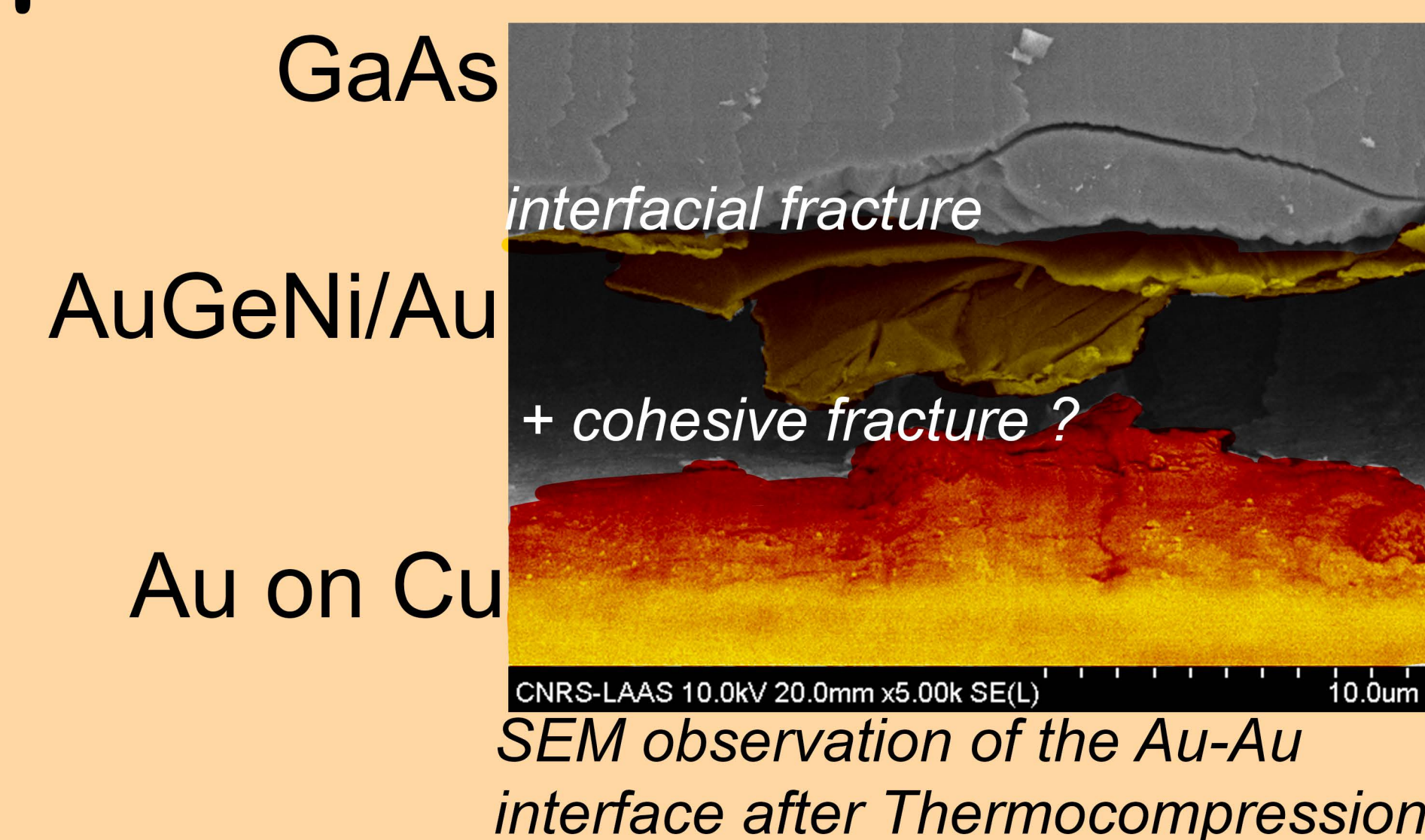
The thermic cycle of thermocompression is 30x longer than a classic annealing done via RTA and we also apply pressure on the substrate. Because of these differences from RTA, we use TLM structure to measure the quality of the annealing.



(left) Linear TLM structure with electrical probes

(right) Measured electrical resistance in function of inter-pad distance

Adhesion problems at the Au-Au interface



Open question: How to characterize the thermal resistance of the interface?

Towards a more complex interface

