Interface Design			
C2.II	**Organiser**	**Institution**	**Contact**
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	Summary		
	Nano-structured and ultra-fine grained materials with their characteristically high interface density often exhibit chemical or physical properties that differ significantly from their corresponding bulk materials: e.g. a much higher yield strength, a strikingly lower or higher melting point, increased resistance to wear and corrosion and/or specific electrical, magnetic and optical properties. This symposium will address current scientific and technological advances in the interfacial design of functional nano-structured materials for, in particular, joining technologies. Important topics to be covered by the symposium include: ○ Tailoring of functional properties in nano-structured materials by smart microstructural and interfacial design. ○ Experimental investigations and model predictions of size-effects in nanostructured materials (e.g. premelting, superheating, solid-state amorphisation, interfacial compound formation, metal-induced crystallization). ○ Experimental investigations and model predictions of (inter-)diffusion and microstructural evolutions at solid-solid and solid-liquid interfaces between metals, semiconductors, alloys and ceramics during processing (e.g. brazing, soldering, diffusion bonding) and operation (e.g. thermal cycling, mechanical loading, chemical exposure). ○ Calphad calculations of nano-structured materials (nano-Calphad) Model predictions (e.g. DFT, molecular dynamics) and experimental verifications (e.g. HR-TEM, X-ray diffraction, atom probe) of local structures, compositions and/or strain fields at coherent and semi-coherent interfaces between metals, semiconductors, alloys and ceramics.		