

**JORNADA D'ECOSISTEMA DE TRANSFERÈNCIA
I INNOVACIÓ EN ENERGIA**



Self Regulating Smart Windows For Energy Saving Applications

Nanostructured functional materials (Nanosfun)

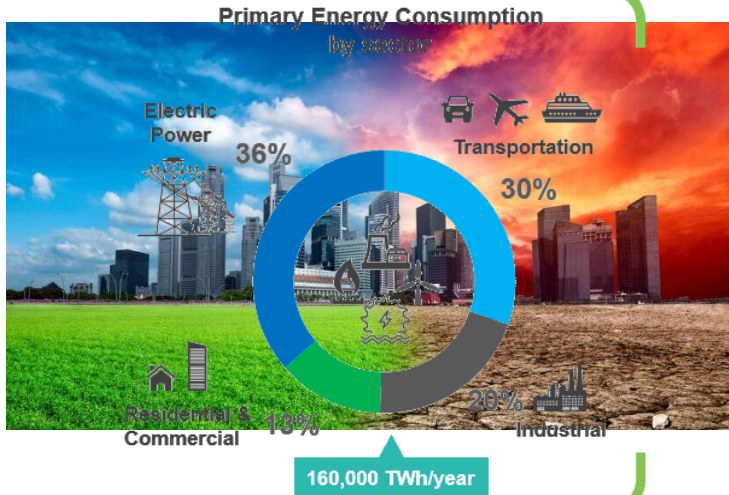


Barcelona, 21.06.2023

Dr. Sohini Sinha



Alarming!!!



Energy Consumption in Buildings

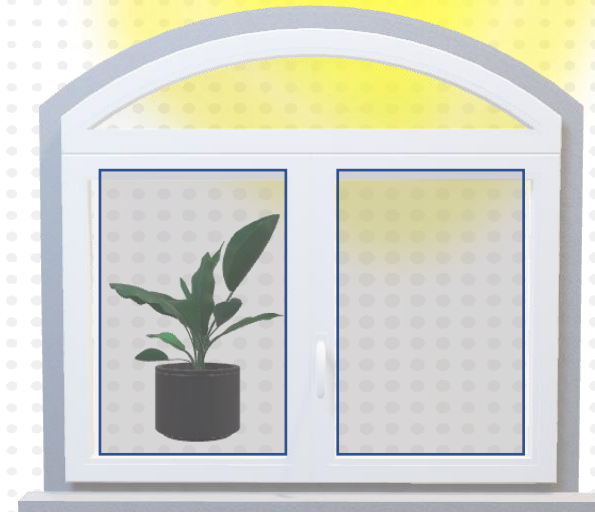


- 40% energy consumption
- ~50% from heating/cooling systems
- CO₂ emissions



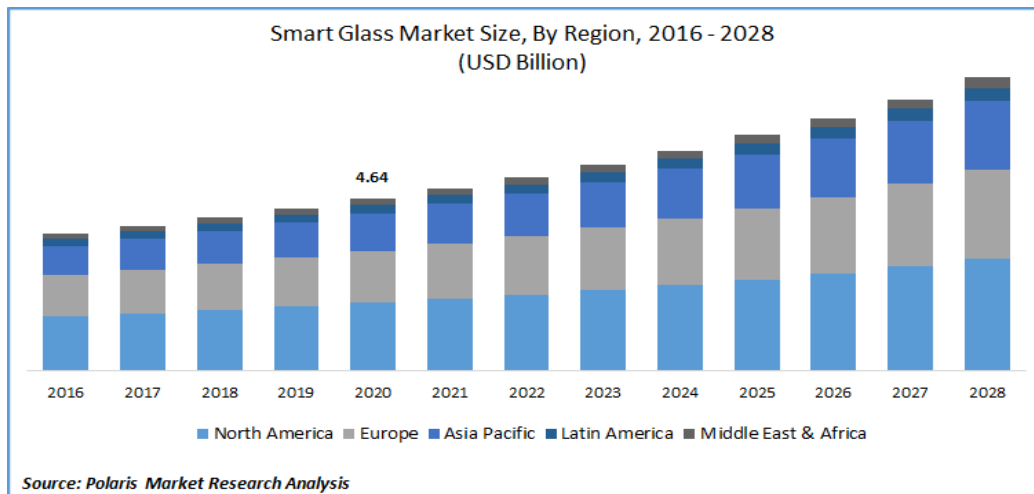
Health & Comfort
(Glare & UV protection)

Smart Windows



APPLICATIONS & MARKET

Total Market: 4.6 BN USD (2020), CAGR (2020-2028):



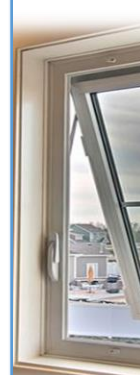
Global Smart Window Market

Market Share by Application (%)



- Residential
- Commercial
- Industrial
- Transport

dentia

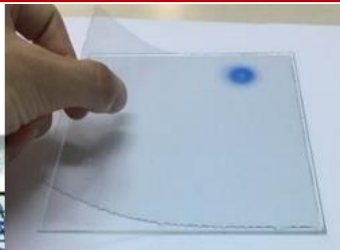
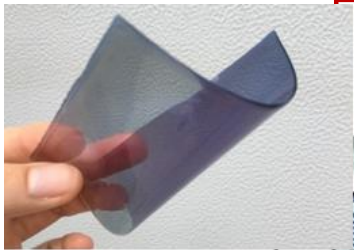


Automobiles

- ✓ EC- Electrochromic
- ✓ PDLC- Polymer dispersed liquid crystal
- ✓ Greenhouses
- ✓ SPD- Suspended particle devices
- ✓ TC- Thermochromic
- ✓ PC- Photochromic ←

Futurechromes High Transparency & Coloration

Flexibility of films

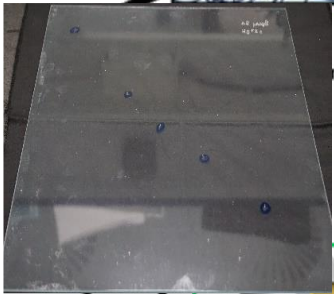


tochrom

COMMUNICATION
Mechanism of a self-templating silica nanospheres with tunable
Qianglin Wang, Yan Liu and Han Yan
Received in Cambridge, UK 1st February 2007, Accepted
First published as an Advance Article on the web 7th
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Spray-Coating

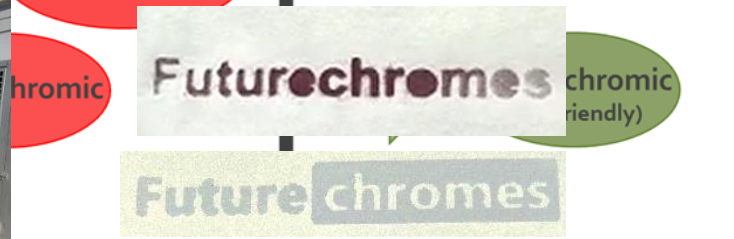


Casting



- ✓ Cost
- ✓ Photostability
- ✓ Highly versatile
- ✓ Commercially available PC dyes

Thermochromic Printing Performance



Easy-on adhesives films



Building windows (Prototyping)



Polymeric Shell

Anti-glare mirrors

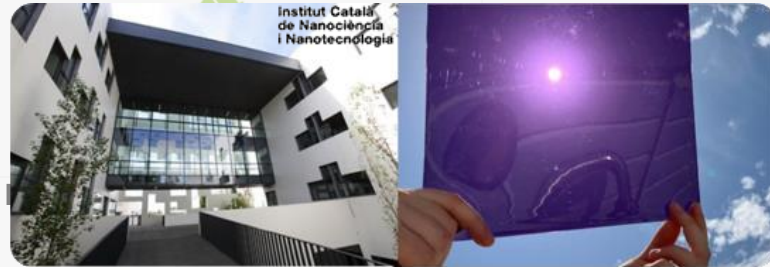


Value Proposition Canvas

Next Steps.....



- Energy saving
- Self-adaptive



- UV protection
- Fast fading
- Photostable



01
Product
Self-adaptive smart windows
Future chromes

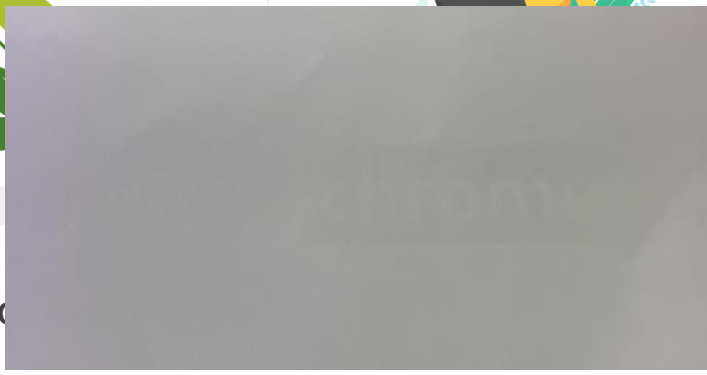
02
Stability studies

03
Ideal Customer
House owners, architects, commercial building owners, real estate, greenhouse building owners

04
Distribution
05
Substitutes



- Reliability
- User-defined
- Energy efficient



Research Team



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CEO & Team leader
Founder



Dr. Daniel Ruiz-Molina
Team leader
Founder



Dr. Luz Karime Gil
Business Developer



Piergiorgio Pelassa
Finance



Maurice Conti
Innovation



Dr. Sohini Sinha
Technical Developer



Aleix Carrascull
Researcher



José Luís Ortolá Yano
Intern



Gino Appiotti
Marketing & Commercial



Main partners:



Collaborations & Fundings



On-going Projects and 2 Patented Technologies

- SOLAR Project CPP2021-008883
- Convocatoria Proyectos de Colaboración Público-Privada 2021



We Need:



Do you fit into our scope of “Societal challenge driven approach for ENERGY SAVING, HEALTH, SECURITY & COMFORT”?



 @XRE4S @IREC_Energia

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THANK YOU!!