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Glass Research and Industry in Africa

A short overview of the glass research and glass industry in Africa will be presented.

Also, short future perspective is added to transfer and localization of technology and lessons learned from the Corona pandemic.

The number of published scientific research articles in year 1980- 2021 has been illustrated by using the search on Scopus [1] was about 14000. While, glass industry focused only in Egypt, Algeria, South Africa and Nigeria. The main glass products were single, double, triple sheet glass, colored and reflected glass. The prices were in the range few tens of US Dollars per m². The smart glasses are the latest applications of glass materials, offering insights into innovative applications for radiation shielding, energy harvesting, laser devices, and temperature sensing [2-4]. In particular, there is a focus on optics, energy conversion technology and laser devices, structural and luminescence properties for laser applications, optothermal and optical properties in the presence of gold nanoparticles, and lanthanide doped glasses as a new smart material. Additional smart glasses address the properties and uses of glasses in optical sensing, the significance of Near Infrared (NIR) emissions, solar cells, solar energy harvesting, luminescent displays, and the development of bioactive glasses for biomedical applications.

It has been concluded by the United Nations [5] that noting the support of the International Commission on Glass, the Community of Glass Associations and the International Committee for Museums and Collections of Glass to promote the International Year of Glass, 2022, gathering more than 1,300 endorsements from the sector in 78 countries:

1. Decides to proclaim 2022 as the International Year of Glass (IYoG 2022);
2. Invites all Member States, organizations of the United Nations system, other international and regional organizations and other relevant stakeholders, including civil society, the private sector and academia, to observe the international year, in an appropriate manner and in accordance with national contexts and priorities, through activities aimed at raising awareness of and directing policy attention to the importance of glass in daily life.

The African economic growth is the lowest in the world, although Africa is very rich in human, natural resources and green energy. Africa (54 Countries, 17.5 % World Population) could work as a main player in the world of glass with the aim of improving the standard of living of the entire continent. Also, Africa can change the situation from importing to exporting High-Technology and improve the economy through the next directions:

1. The Future in Action,
2. Engaging stakeholders: transforming challenges to opportunities (a learning evolution).

References:

1. Scopus/glass (28 Dec. 2021).
2. R. El-Mallawany, Editor, Tellurite Glass Smart Materials: Applications in optics and beyond. ISBN 978-3-319-76568-6, Pages 1-297 (2018). <http://www.springer.com/us/book/9783319765679>
3. R El-Mallawany, Some physical properties of tellurite glasses, Tellurite Glass Smart Materials, Springer, 1-16 (2018), (Springer) (<http://www.springer.com/us/book/9783319765679>) ISBN 978-3-319-76568-6, Pages 297 (2018)
4. R El-Mallawany, Radiation Shielding Properties of Tellurite Glasses, Tellurite Glass Smart Materials, Springer 17-27 (2018), (Springer) (<http://www.springer.com/us/book/9783319765679>) ISBN 978-3-319-76568-6, Pages 297 (2018)
5. United Nations A/75/L.84, General Assembly , Agenda item 136, Impact of rapid technological change on the achievement of the Sustainable Development Goals and targets 11 May 2021.

Primary Category

Condensed Matter & Materials Physics

Secondary Category

Condensed Matter & Materials Physics

Subgroup categories

MaterialsPhysics—Advanced 2D materials

Did you / will you submit this LOI to another category?

NO

Additional Information

NONE

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