

Affirmation of The Age of Glass

To the editor:

As a means of proclaiming epochal periods in the history of humankind, historians have classified eras from several perspectives, such as materials, human activity, and astrological theory. Respective examples are “The Iron Age,” “The Age of Enlightenment,” and the “Age of Aquarius.” During the last decade, there has been an emerging sense that we live in “The Age of Glass.” Based on the discussion below and our professional experiences—both individually and collectively—we wish to affirm this epic moment in the history of glass.

That we have arrived at this milestone is supported by the United Nations declaring 2022 “The International Year of Glass,” the first time this honor was bestowed on a material.¹ This celebratory year gave us a platform through which to confirm the centrality of glass in modern society, look into the crystal ball to muse on the material’s future, and thank some of the glass pioneers who helped bring us to this point.

Though the International Year has come and gone, glass continues to flow into our lives, enabling a menagerie of daily uses and appreciation in architecture, transportation, communications, science, art, and especially medicine, e.g., glasses for wound healing, cancer treatment, and eye care. Some of these threads are obvious while others less so: glass windows in homes and cars; fiberglass insulation; glass jars to store food; glass cover plates on phones, tablets, and TVs; glass optical fibers that enable e-commerce and the internet; and glass art all around us, to name just a few. Glass lets us peer into the extremes of nature: from the celestial scale through the lens of the James Webb Space Telescope to the infinitesimal through the lens of microscopes; from the intensely bright glass fiber lasers that outshine the sun to the dimmest glass lightbulbs that help illuminate the darkness. A day without glass is a day without most modern conveniences and enjoyments.

Mother Nature has a soft spot for glass. Despite millennia of study and development, she has hidden a plethora of questions about glass science and engineering that provide numerous opportunities for future discovery. Some especially noteworthy questions offered by the authors of this letter include

- Can we learn to predict using theoretical models or computer simulations the crystallization speed (or critical cooling rate) required to avoid devitrification?
- Will all glasses eventually crystallize in the limit of infinite time?
- What are the structural origins of glass relaxation?
- What are the silica glass network’s four yield strengths (in dilation, pure compression, shear tearing mode, and shear twisting mode)?

- What is the nature of the glassy state?
- Can industry develop rapid homogenization and fining technology that permits single melter–multiforehearth factories to produce multiple compositions that optimize glass properties for specific applications and minimize production costs?
- How to decarbonize glass manufacturing?

For as long as humans have existed, glass has played an important role in enabling community and progressing society. Its future remains as bright as ever, arguably more so than in the past. We stand here, now, on the shoulders of giants, with a list of unanswered questions that will help define the role of glass in our future. Let’s get started!

Lastly, in recognition and appreciation of those who contributed so much to laying the groundwork of glass science, the Glass & Optical Materials Division of The American Ceramic Society established the L. David Pye Lifetime Achievement Award in 2019. The history of this Award and its greater meaning to those recognized are given on the next page.

Sincerely,

John Ballato,^a Kathleen Richardson,^b Mario Affatigato,^c Richard Brow,^d John Mauro,^e Edgar Zanotto,^f Lisa Klein,^g Minoru Tomozawa,^h William LaCourse,ⁱ Doris Möncke,ⁱ Collin Wilkinson,ⁱ L. David Pye,ⁱ S.K. Sundaram,ⁱ Alastair Cormack,ⁱ Manoj Choudhary,^j Arun Varshneya,^k and Carol Jantzen^l

^aClemson University, Clemson, S.C.

^bUniversity of Central Florida, Orlando, Fla.

^cCoe College, Cedar Rapids, Iowa

^dMissouri University of Science and Technology, Rolla, Mo.

^eThe Pennsylvania State University, University Park, Pa.

^fFederal University of São Carlos, Brazil

^gRutgers University, Piscataway, N.J.

^hRensselaer Polytechnic Institute, Troy, N.Y.

ⁱAlfred University, Alfred, N.Y.

^jThe Ohio State University, Columbus, Ohio

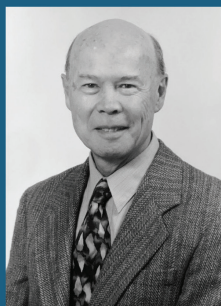
^kAlfred University, Saxon Glass Technologies, Inc., Alfred, N.Y.

^lUniversity of South Carolina, Aiken, S.C.

References

¹A. Durán and J. M. Parker, “Celebrating glass, achieving sustainability, inspiring transformation: A report on the activities undertaken for the United Nations International Year of Glass 2022,” Consejo Superior de Investigaciones Científicas, Madrid 2024. <https://saco.csic.es/index.php/s/BS7sAXsBr4zQ79P> ■

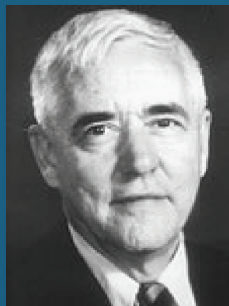
L. David Pye Glass Hall of Fame Recipients



John Mackenzie
(2019)



Charles Kurkjian
(2019)



Donald Uhlmann
(2020)



Dale Chihuly
(2020)



Reinhard Conradt
(2020)



William LaCourse
(2022)



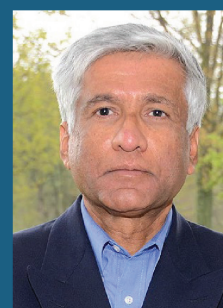
Steve Feller
(2023)



Carlo Pantano
(2023)



Carol Jantzen
(2024)



Manoj Choudhary
(2024)

L. DAVID PYE GLASS HALL OF FAME AWARD

The year 2019 was a seminal moment for both The American Ceramic Society and the Glass & Optical Materials Division. For GOMD, it was the 100th anniversary of its founding by ACerS (originally called the Glass Division, renamed in the 1990s). For ACerS, it was the convening of the 25th International Congress on Glass in Boston, Mass. It was the fourth time ACerS had been given the honor of hosting this conference by the International Commission on Glass, and the decision was based to a large degree on it being the GOMD centenary.

This year was also when GOMD established and first bestowed the L. David Pye Lifetime Achievement Award. This annual award recognizes a deserving individual(s) for their dedication, vision, and accomplishments in advancing the fields of glass science, engineering, and art. It is named in honor of L. David Pye, dean emeritus and professor emeritus of glass science at The New York State College of Ceramics at Alfred University and ACerS past president, Fellow, and Distinguished Life Member.

That first year, two luminary individuals, John Mackenzie and Charles Kurkjian, were chosen for this honor, which was presented to them at the Glass Congress in Boston. Subsequently, this award has been presented to several other deserving individuals (see photo collage above).

As the list of award recipients has grown, the GOMD Executive Committee reflected on the fact that this group serves essentially as a “Hall of Fame” for those in the glass community. Accordingly, this award will now be called “The L. David Pye Glass Hall of Fame Award.”

Nominations for the 2025 award are due by Jan. 21, 2025. Nominations should be sent electronically to GOMD chair Michelle Korwin-Edson (Michelle.Korwin-Edson@owenscorning.com) and ACerS staff member Vicki Evans (vevans@ceramics.org). Details on the nomination process can be found at <https://ceramics.org/Glass-Hall-of-Fame-Award>. ■