

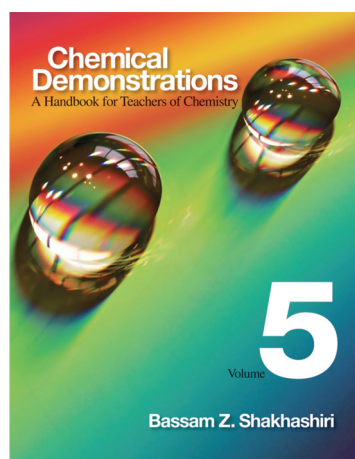
## Review of *Chemical Demonstrations, Volume 5: A Handbook for Teachers of Chemistry*

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**Chemical Demonstrations, Volume 5: A Handbook for Teachers of Chemistry**, by Bassam Z. Shakhshiri, with Rodney Schreiner and Jerry A. Bell. The University of Wisconsin Press: Madison, WI, 2011. pp. ISBN 978-0299226503. Hardcover \$39.95

Besides the vivid use of color in *Chemical Demonstrations, Volume 5: A Handbook for Teachers of Chemistry*, what catches your eye right off the bat is to whom this volume is dedicated: Ron Perkins and Oliver Sacks. If you are not just obtaining this volume to complete the set, that dedication should answer the question of whether you need *Volume 5*'s collection of demonstrations to support your presentation of concepts of color, light, vision, and perception. The extensive introductory chapter of *Volume 5* is a must for anyone who wants to know the science behind color and light as interpreted by humans. But I purchased this volume for the demos: 54 demonstrations and 83 different procedures. The first component that caught my attention was the essay "Shining Light, Shedding Light" (p xiii) by one of my favorites, Nobel-laureate Roald Hoffmann, in which he offers his take on fireflies and quantum. Another attention-grabber for me was the section "Displaying Small Phenomena to a Large Audience" (p xxxiii) highlighting two demos that have been in my repertoire for 15 years: Briggs–Rauscher (Demonstration 7.1), and oxidation of luminol (Demonstration 2.4).



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Have you ever wanted to "tell" your students about the differences between fluorescence and phosphorescence? Do not tell them; show them! This book has both a demo (see 12.37, p 232), and an accompanying discussion on this topic. As in previous volumes, meticulous attention has been paid to safety hazards, practical applications, detailed discussions of the

chemistry behind the demos, notations about proper disposal techniques, and, when appropriate, historical background is included. Many *JCE* readers will be comforted by the fact that some of the demos are new but others are simply variations to demos that you routinely perform. An example of the tried-and-true is Flame Tests (see 12.6, p 108). A variation that I was drawn to was the Photochromic Methylene Blue Solution (see 12.43, p 256). Several examples are included of audience favorites on chemiluminescence, in which light is emitted as a result of the release of energy by chemical reactions (see 12.8 and 12.9, pp 118–123). The text also alerts readers that *Volume 1*<sup>1</sup> has a focus on chemiluminescence. To make sure that we can "remember" where we once saw "that really cool demo", the various sections of *Volume 5* begin with a review of the previous volumes in which light or the use of color is involved.

In addition to several light-emitting demos, another section on refraction and diffraction is included. These demos are always entertaining and crowd pleasers with minimal cost and disposal issues. This section (as others) makes use of judiciously placed colored diagrams and figures that add great depth to the volume. If you are a typical hoarder of things that others wish to dispose of, make sure you keep an old slide projector for the Tyndall Effect demo (12.19, p 160) and an LCD display panel (12.23, p 171) to experience polarized light. In fact, check out pages 311–322 for an index of all of the previous demos.

Classroom demonstrations have been part of chemistry education since Hubert Alyea popularized his presentations at Princeton University in the mid-20th century. *Chemical Demonstrations, Volume 5* is a must-have whether you are new to classroom demonstrations or an old pro, or even for those interested in the science of art or the art of science. The use of gorgeous, crisp colors is perfect for this volume on color, light, vision, and perception. This exceptionally well-written volume presents superb descriptions of the most minute detail with a balance between the chemistry and the appeal of doing demos. *Chemical Demonstrations, Volume 5* is a blueprint for success in presenting chemical demonstrations and describes demos appropriate for all consumers. In a discipline that has such potential for engaging students, please encourage more teachers to take advantage of all volumes of *Chemical Demonstrations* authored by Bassam Shakhshiri, who is an extraordinary professor of chemistry and currently ACS President. From the youngest to the oldest chemist, this companion resource offers something for everyone.

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■ REFERENCES

(1) Shakhshiri, B. Z. *Chemical Demonstrations: A Handbook for Teachers of Chemistry*, Vol. 1; University of Wisconsin Press: Madison, WI, 1983.