JASON LYE PH.D
PUBLICATIONS

Peer Reviewed Technical Journal Articles

- J. LYE, H. S. FREEMAN, R. D. COX, Molecular Modeling of Congo Red Analogs Containing Terphenyl and Quarterphenyl Moieties, *Dyes and Pigments,* **47** 53-64 (2000).
- J. LYE, H. S. FREEMAN, AND D. HINKS, Molecular Modeling in Dye Chemistry: Studies Involving Two Disperse Dyes, *Textile Research Journal*, **69** (8) 583-590 (1999).
- J. LYE, H. S. FREEMAN, M. E. MASON, AND P. SINGH, X-ray Crystal Structure of CI Disperse Yellow 86, *Dyes and Pigments,* **42** (1) 107-111 (1999).
- H. S. FREEMAN, M. E. MASON, AND J. LYE, Disperse Dyes Containing a Built-in Oxalanilide Stabilizer, *Dyes and Pigments*, **42** (1) 53-63 (1999).
- J. LYE AND H. S. FREEMAN, Azo and Nitrodiphenylamine Dye Photochemistry, *Advances in Colour Science and Technology,* (**1999**) (2) 124-141.

Conference Proceedings and Book Chapters

- J. LYE AND K. MACRAKIS, Appendix: Fun Kitchen Chemistry Experiments *in* K. MACRAKIS (Auth.) Prisoners, Lovers, and Spies - The History of Invisible Ink from Herodotus to Al-Qaeda, *Publ. Yale University Press*, **2014.**
- Digital Textile Inks and Media, Digital Color Imaging 2000 (Diamond Research Corporation), **October 29th-November 3rd , 2000**, Santa Barbara CA.
- A. EL-SHAFEI, D. HINKS, H. S. FREEMAN, J. LYE, Semi-Empirical Molecular Orbital Methods in the Design of Organic Colorants, *Book of Papers, American Association of Textile Chemists and Colorists International Conference and Exhibition,* Winston Salem NC., **September 17th - 20th, 2000**
- Preparing for a Revolution: Digital Fabrics and Inks, Information Management Institute 8th Annual Digital Printing Papers Conference, San Diego CA, **July 26-28th, 2000**.
- H. S. FREEMAN, J. LYE, R. D. COX, D. HINKS AND J. SOKOLOWSKA-GAJDA, Modern Molecular Modeling Methods: Utility in Color Chemistry, *Proceedings of the 7th International Conference on Organic Dyes and Pigments, Czech Republic*, **May 17-21, 1998**.
- J. LYE, H. S. FREEMAN, A. F. SCHREINER AND J. SOKOLOWSKA-GAJDA, Semi-empirical MO Methods in Dye Design: Application to Transition Metal Complex Dyes, *Proceedings of the Colour Science '98 Conference, Harrogate, England*, pp 9-25, **March 30-April 1, 1998**. *ISBN 0 85316 196 8*
- J. LYE, H. S. FREEMAN AND D. HINKS, Computational Chemistry Applied to Synthetic Dyes, *in* G. CISNEROS, J. A. COGORDON, M. CASTRO, C. WANG (Eds.) Computational Chemistry and Chemical Engineering: Proceedings of the 3rd UNAM-Cray Supercomputing Conference, *Mexico City, Mexico, Publ. World Scientific, Singapore*, **1997**, pp. 214-26.
- D. HINKS, J. LYE AND H. S. FREEMAN, Computer-Aided Dyestuff Design, *Book of Papers, American Association of Textile Chemists and Colorists International Conference and Exhibition, Atlanta, GA*, **October 8-11, 1995**, pp. 74-85.

Dissertation

"Semi-empirical MO-Methods in Dye Chemistry: Studies Involving Disperse and Metal Complex Dyes." North Carolina State University, College of Textiles, 1998.
Advisor: Prof. Harold S. Freeman, Ciba-Geigy Professor of Dyestuff Chemistry.
Project Goal: Molecular modeling design and synthesis of novel dyes resistant to light-induced fading. The paramagnetic, coloristic, and fastness properties of 2:1 Cr (III) and Fe (III) complex dyes were explained using MO theory. Molecular descriptors were identified that could be used to design new ligands which give brightly colored, fast, Fe (III) complex dyes. Disperse dyes for polyester that were resistant to fading by sunlight were also investigated. Based upon results from molecular modeling investigations, new dye structures were designed. Organic dye synthesis, purification, and analytical methods, (Magnetic susceptibility, NMR, MS, tlc, UV-Vis) were also utilized.

Patent Publications

Twenty US patents issued; additional patents in prosecution at this time.
Fields of invention include Diagnostics, Ink jet ink, Ink jet substrates, Cleaning, Nanotechnology, Triggered Release, Biotechnology, Functional dyes, and Water disinfection.

Selected patent publications:

USPN 8,617,874 "Array for Rapid Detection of a Micro-organism"

USPN 8,361,742 "Method for Detecting Candida on the Skin"

USPN 8,277,801 "Delivery System for Functional Compounds"

USPN 7,814,582 "System and Method for Monitoring Overflow Conditions in a Washroom"

USPN 7,531,319 "Array for Rapid Detection of a Microorganism"

USPN 7,399,608 "Microbial Detection and Quantification"

USPN 7,282,349 "Solvatochromic Bacterial Detection"

USPN 6,726,754 "Method for Enzyme-Mediated Removal of Gas from Inks"

USPN 6,780,893 "Stabilized Photoinitiators and Applications Thereof"

USPN 6,451,098 "High Dye Loading Ink Jet Inks with Improved Color Development on Textiles"

WO 03/71840 "Fluidized Bed Activated by Excimer Plasma and Materials Therefrom"

Trade Secrets (used in production)	Field: Mixing Technology
	Field: Dye Purification Technology