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Abstract

A complete software on standard colorimetry, named "Colour & Colorimetry", has been developed for laboratory computations and didactics. This software will be part of a forthcoming book on colorimetry (ref. 1). Today, it is successfully used at the University of Parma and soon will be used in the European ERASMUS Master Program, entitled "Color in Informatics and MEdia Technology" (CIMET). The completeness and practical effectiveness of the 2nd edition of this software induces us to present it at the Sixteenth Color Imaging Conference.

Introduction

The main purpose of the software "Colour & Colorimetry" is to:

- support teachers and students in learning basic and advanced concepts about colorimetry
- provide an useful tool for computations to the lab technician

The software presents 27 toolboxes divided in 9 categories.

1. Monitor

- Monitor setup
- Visual evaluation of the gamma

2. Colour-Vision test

- Colour-Vision test

3. Visual contrast phenomena

- Luminance, contrast and crispening
- Luminance contrast in colour scales
- Luminance and chromatic scales

4. Colour atlases

- Munsell atlas
- Din atlas
- OSA atlas
- CIE $L^*a^*b^*$ - CIE $L^*u^*v^*$

5. Tristimulus and cone activation

- Tristimulus and cone activation

6. Colorimetry

- CIE colour specification
- CIE systems
- Chromaticity diagrams
- Vos observer
- Dominant wavelength and purity
- Tristimulus space transformation (Figure 1)
- ΔE
- Colour rendering index

7. Reference illuminant spectra

- Blackbody and daylight spectra

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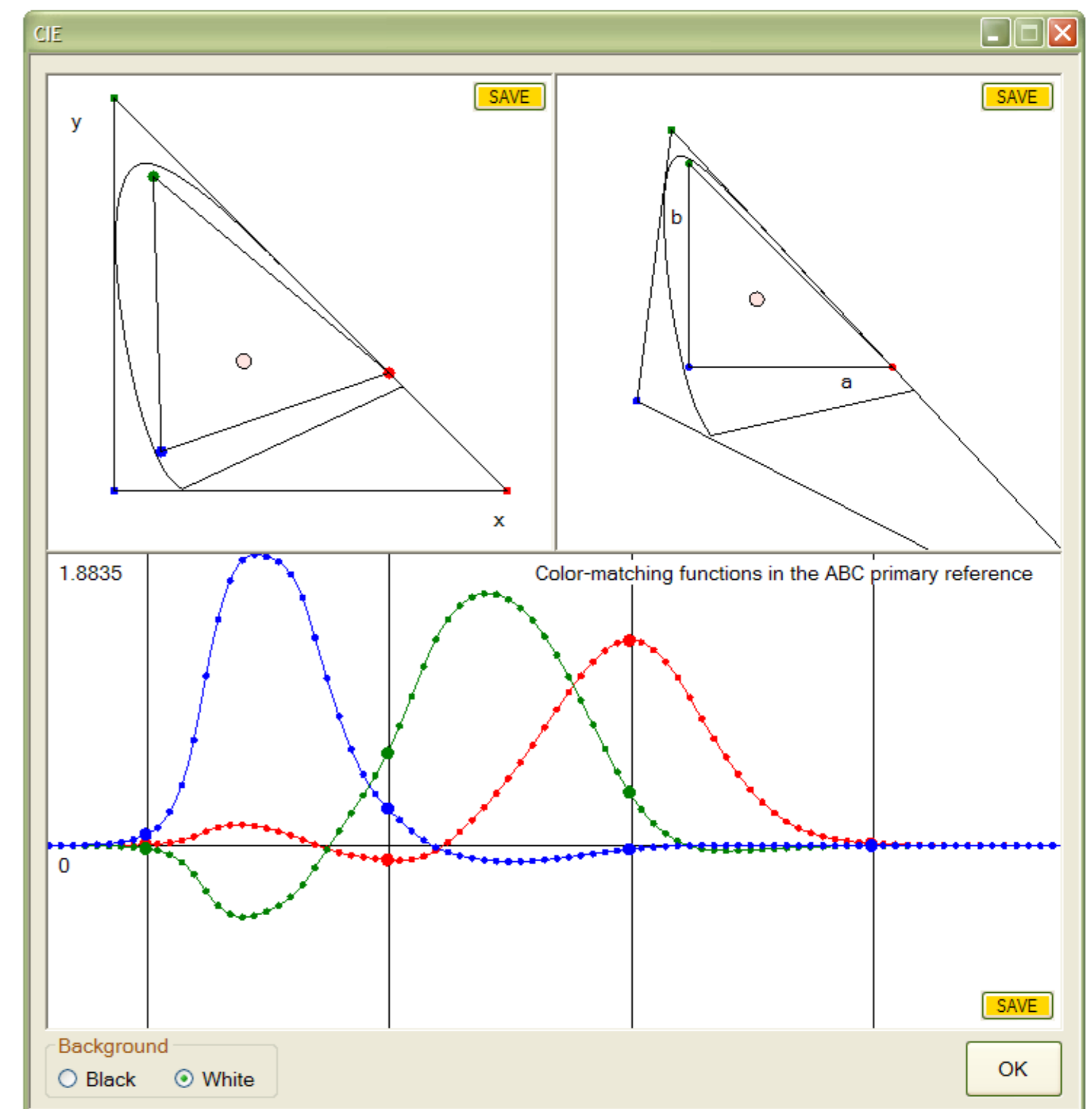


Figure 1. Tristimulus space transformation. Chromaticity diagrams and color-matching functions are shown.

8. Colour synthesis

- RGB monitor additive synthesis
- Screen plate printing
- Two pigment mixture
- Four pigment mixture

9. Tools

- Spectral data view and download
- Saved file opening
- Database look-up

References

- [1] A cura di C. Oleari: Misurare il colore, Hoepli, Milano, 2a edizione, 2008 (first edition 1998)