

Papers on methods for analysing colour in nature

The list is intended to be inclusive in that it'll contain reviews, and empirical papers that offer extensions, novel applications, or tests of assumptions. Suggestions welcome via twitter (@tomedwhite, #colsci), email, pull request, etc.

Akkaynak 2014, [Use of spectroscopy for assessment of color discrimination in animal vision](#)

Allen & Higham 2013, [Analysing visual signals as visual scenes](#)

Backhaus 1991, [Color opponent coding in the visual system of the honeybee](#)

Backhaus & Menzel 1987, [Color distance derived from a receptor model of color vision in the honeybee](#)

Bennett et al. 1994, [Sexual selection and the mismeasure of color](#)

Burnham et al. 1957, [Prediction of color appearance with different adaptation illuminations](#)

Brandt & Vorobyev 1997, [Metric analysis of threshold spectral sensitivity in the honeybee](#)

Chittka 1992, [The colour hexagon: a chromaticity diagram based on photoreceptor excitations as a generalized representation of colour opponency](#)

Chittka et al. 1992, [Opponent color coding is a universal strategy to evaluate the photoreceptor inputs in Hymenoptera](#)

Chiao et al. 2009, [Visualization of the spatial and spectral signals of orb-weaving spiders, Nephila pilipes, through the eyes of a honeybee](#)

Dartnall 1953, [The interpretation of spectral sensitivity curves](#)

De Valois & De Valois 1993, [A multi-stage color model](#)

Dyer 2012, [The mysterious cognitive abilities of bees: why models of visual processing need to consider experience and individual differences in animal performance](#)

Endler 1989, [On the measurement and classification of colour in studies of animal colour patterns](#)

Endler 2012, [A framework for analysing colour pattern geometry: adjacent colours](#)

Endler & Mielke 2005, [Comparing entire colour patterns as birds see them](#)

Garcia et al. 2014, [Flower colours through the lens: quantitative measurement with visible and ultraviolet digital photography](#)

Grill & Rush 2000, [Analysing spectral data: comparison and application of two techniques](#)

Govardovskii et al. 2000, [In search of the visual pigment template](#)

Hart & Vorobyev 2005, [Modelling oil droplet absorption spectra and spectral sensitivities of bird cone photoreceptors](#)

Hurvich & Jameson 1955, [Some quantitative aspects of an opponent-colors theory. II. Brightness, saturation, and hue in normal and dichromatic vision](#)

Hurvich & Jameson 1956, [Some quantitative aspects of an opponent-colors theory. IV. A psychological color specification system](#)

Jameson & Hurvich 1955, [Some quantitative aspects of an opponent-colors theory. I. Chromatic responses and spectral saturation](#)

Jameson & Hurvich 1956, [Some quantitative aspects of an opponent-colors theory. III. Changes in brightness, saturation, and hue with chromatic adaptation](#)

Jameson & Hurvich 1964, [Theory of brightness and color contrast in human vision](#)

Kelber 1999, [Ovipositing butterflies use a red receptor to see green](#)

Kelber 2001, [Receptor based models for spontaneous colour choices in flies and butterflies](#)

Kelber et al. 2003, [Animal colour vision: behavioural tests and physiological concepts](#)

Kelber & Osorio 2009, [From spectral information to animal colour vision: experiments and concepts](#)

Lind & Kelber 2009, [Avian colour vision: effects of variation in receptor sensitivity and noise data on model predictions as compared to behavioural results](#)

Luo et al. 2001, [The development of the CIE 2000 colour-difference formula](#)

Maia et al. 2012, [pavo: an R package for the analysis, visualization and organization of spectral data](#)

Maloney & Wandell 1986, [Color constancy: a method for recovering surface spectral reflectance](#)

McLaren 2008, [The development of the CIE 1976 \(\$L^* a^* b^*\$ \) uniform colour space and colour-difference formula](#)

Osorio et al. 2004, [Detection of fruit and the selection of primate visual pigments for color vision](#)

Perex-Rodriguez et al. 2013, [Fractal geometry of a complex plumage trait reveals bird's quality](#)

Pike 2011, [Using digital cameras to investigate animal colouration: estimating sensor sensitivity functions](#)

Pike 2012, [Preserving perceptual distances in chromaticity diagrams](#)

Pike 2012, [Generalised chromaticity diagrams for animals with n-chromatic colour vision](#)

Stevens et al. 2007, [Using digital photography to study animal coloration](#)

Stoddard & Prum 2008, [Evolution of avian plumage color in a tetrahedral color space: a phylogenetic analysis of new world buntings](#)

Stoddard & Stevens 2010, [Avian vision and the evolution of egg color mimicry in the common cuckoo](#)

Stoddard et al. 2014, [Pattern recognition algorithm reveals how birds evolve individual egg pattern signatures](#)

Strachan et al. 1990, [Calibration of a video camera digitising system in the CIE \(\$Luv\$ \) colour space](#)

Taylor et al. 2013, [Distance transform: a tool for the study of animal colour patterns](#)

van Hateren 1993, [Spatial, temporal and spectral pre-processing for colour vision](#)

Vorobyev 2003, [Coloured oil droplets enhance colour discrimination](#)

Vorobyev & Osorio 1998, [Receptor noise as a determinant of colour thresholds](#)

Vorobyev et al. 1998, [Tetrachromacy, oil droplets and bird plumage colours](#)

Vorobyev et al. 2001, [Colour thresholds and receptor noise: behaviour and physiology compared](#)

Vukusic & Stavenga 2009, [Physical methods for investigating structural colours in biological systems](#)

Wachtler et al. 2004, [Modeling color percepts of dichromats](#)