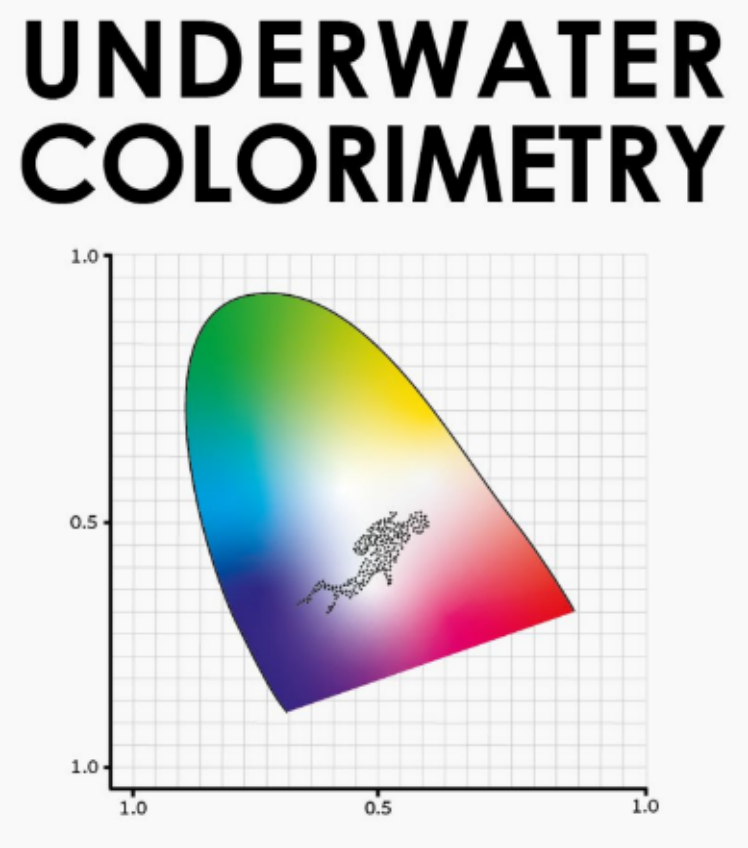
Underwater Colorimetry
Lottery

IUI

January 2026



THE INTERUNIVERSITY INSTITUTE FOR MARINE SCIENCES IN EILAT

1. Image formation model - both above and under water
2. Color perception
3. The difference between scientifically usable and NOT usable photos - In camera processing.
4. Attenuation in air vs. underwater.
5. Physical attenuation coefficients: beam and diffuse attenuation coefficients and Beer-Lambert law.
6. Camera space attenuation coefficients.
7. White balance, above and underwater.
8. The CIE standard observer: The chromaticity diagram, color spaces, and color transformations.
9. Deriving the linearity and sensitivity of the sensors.
10. Depth estimation: available methods, accuracy, and effects.
11. Structure from Motion.
12. Backscatter - theory & estimation.
13. Sensor technologies.
14. Inverse and direct image formation.
15. Lidar - theory, applications, difficulties in underwater applications, What are the Underwater Applications for it?