

1145-D1-2617 **Donald Spector*** (spector@hws.edu), Department of Physics, Hobart and William Smith
Colleges, Geneva, NY 14850. *Images Produced via Modular Multiplicative Inverses.*

In recent work, I explored the use of modular multiplication to modify musical themes and create new harmonic structures. Here, I take the same basic methodology and apply it visual art, manipulating images with rules based on pairing colors corresponding to inverses with respect to multiplication modulo a prime number. By selecting the number of subdivisions into which the gray scale or various individual color scales (e.g., R, G, and B, or C, M , Y, and K), one can employ different modular groups, obtaining different visual effects; the most compelling images arise from groups whose order is neither too small nor too large. Working interactively with this method allows an exploration of a range of possible images, which provides some insight into the structure of the relevant multiplicative groups as one examines a variety of aesthetic outcomes. (Received September 25, 2018)