

FRIDAY 27 OCTOBER, 1:30-5:30 PMSMT SHORT SESSION, 1:30-3:30 PM**RECENT RESEARCH IN MUSICAL TIMBRE****Robert Cogan (New England Conservatory), Chair****TIMBRE AND ORCHESTRATION: THE PSYCHOACOUSTICS OF "BLEND"****Gregory J. Sandell, Northwestern University**

Orchestration requires an understanding of how instruments combine and blend into effective colors. Orchestration manuals try to guard the student against unsuccessful choices and point out tried and true combinations. To explore the hypothesis of blend, an experiment was devised whereby seven listeners heard pairs of recorded musical instruments playing single notes together, and rated the degree of blend on a ten-point scale. The three-dimensional model of timbre suggested by Grey (1975) was used as a framework for comparing the listeners' judgments with physical aspects of the tones. Grey's study of similarity judgments for successively presented tones had revealed three factors: a "dark/bright" dimension (centroid), harmonic synchrony, and the nature of the attack portion. Two of the dimensions--centroid and attack--have a significant relationship to blend judgments in the present study. In general, "dark" instruments (e.g., cello, bassoon, horn) and instruments with quick attacks (double-reeds and brass) tend to blend well. The amount of blend reported for such instruments decreased as their pairs increased in brightness or attack length, and pairs of bright or slow-attack-time instruments did not blend well. The results support several specific suggestions for combinations given in Rimsky-Korsakov's Principles of Orchestration, and three-dimensional graphic plots of the instruments show visual analogues for other interesting observations by Rimsky.

CIRCLING THE SOUND-COLOR SQUARE:**A NEW SET OF INVARIANT OPERATIONS****Wayne Slawson, University of California, Davis**

In response to criticisms of an earlier theory for the organization of sound color in music, a new representation of the sound color universe is proposed in which the colors are arranged in a circle. In this circular representation, transposition and inversion operations are defined that are homomorphic with the analogous operations in the pitch domain. The new sound-color operations are independent of the apparent psychological dimensions of the underlying sound-color space and raise certain perceptual issues. A computer-synthesized composition has been structured in part by means of these new operations.

AMS SHORT SESSION, 2:00-3:30 PM**TEXT AND PERFORMANCE****Robert Bailey (New York University), Chair**

ABSTRACTS



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