School: Bath School of Music and Performing Arts

Researcher: Joseph Hyde

Project Title: danceroom Spectrocopy 2.0

UOA: 33

300 Word Statement

danceroom Spectrosopy (dS) is an interdisciplinary digital arts exhibition and dance/music performance inspired by the scientific study of microscopic phenomena.

Presenting fundamental research in an interactive, immersive and aesthetically compelling format, dS invites participants to literally step into and play with a rigorous atomic and molecular dynamics simulation. The system captures participants using volumetric cameras and interprets their movements as 'energy fields', which are embedded within a cloud of particles that is rendered and projected in real-time.

danceroom Spectroscopy is usually presented as a public installation with a one-hour dance performance with four virtuosic dance performers entitled Hidden Fields.

During a residency at Zentrum für Kunst und Medien (ZKM) in Karlruhe, Germany, an entirely new version of the piece (dS 2.0) was produced using a new software and hardware platform. This greatly increased the interactivity of the system, particularly in terms of sound, and also made it possible to easily run the system for long periods. These aspects of the project were developed over a long run of performances and installations over 2014-17, leading eventually to a 3-month install in The Box at Bristol's we the curious in 2017/18.

Hyde's contribution to the project is the sound and music, which is interactive both with the dancers and the molecular simulation. The new version also introduced the possibility of the sound to influence the simulation, and therefore complex interaction feedback loops. The contribution amounts to an full hour-long interactive score for the Hidden Fields performance, and an almost infinite quantity of algorithmically-driven material for the installation.

Hyde has contributed to a number of papers and a book chapter detailing elements of this research – the most relevant are included here.