

## PROGRAMME NOTE

The composition of *Outlier* was directly influenced by PRISM collaboration 'Music & Mathematics Interrogate Brain Tumour Dissemination' with mathematician Rachel Beaton and biologist Violaine See at the University of Liverpool. Supported by the Liverpool Centre in Mathematics for Healthcare, Beaton and See are seeking to interrogate how brain tumour cells move and invade their 3D environment, and I have been particularly interested in the nature of the motion and trajectories of outlier escaping cells as well as new mathematical models to map them. I am grateful for so many helpful conversations with Rachel Beaton, Violaine See and violist Paul Silverthorne.

Emily Howard, February 2019

*Duration: c. 9'*

*Commissioned by the London Sinfonietta for the World Premier Wednesday series with the support of Bob Bax.*

*First performed by Paul Silverthorne (viola) on 26th September 2018 at King's Place, London, UK*

## PERFORMANCE NOTES

### Vibrato

Vibrato is graded throughout the work in the following way:

s.v. (*senza vibrato*): play without vibrato

vib.: play with a small amount of vibrato

m.v. (*molto vibrato*): play with a lot of vibrato

w.v. (*wide vibrato*): play with a wide exaggerated vibrato

v.w.v. (*very wide vibrato*): play with an even wider, more exaggerated vibrato

### Quarter tones



three-quarter tone flat



quarter tone flat



quarter tone sharp



three-quarter tone sharp

Eighth tones are notated as quarter tones with arrows.

# Outlier

for Solo Viola

Emily Howard

## Very slow and methodical

senza vib. (s.v.) IV  
*ppp*

(s.v.) poco vib. III II  
*fff ppp*

s.v. molto vib. IV III  
*fff pp*

s.v. wide vib. II IV  
*ff pp*

s.v. very wide vib. III II  
*ff p*

s.v. wide vib. IV III  
*f p*

s.v. molto vib. II IV  
*f mp*

s.v. poco vib. III II  
*mf mp*

s.v. (s.v.) IV III  
*mf*

s.v. poco vib. II IV  
*mp mf*

s.v. molto vib. III II  
*mp f*

s.v. wide vib. IV III  
*p f*

s.v. very wide vib. II IV  
*p ff*

s.v. wide vib. III II  
*pp ff*

s.v. molto vib. IV III  
*pp ff*

s.v. poco vib. II IV  
*ppp ff*

s.v. III  
*ppp sempre*

(s.v.) poco vib. II IV  
*ppp sempre*

s.v. molto vib. III II  
*ppp sempre*

s.v. wide vib. IV III  
*ppp sempre*

sul tasto

sul tasto

sul tasto

## senza misura, as fast as possible, chaotic

ced.

*fff*

*ppp*

*fff*

*ppp*

*fff*

*ppp*

*fff*