



Du  
**29**  
JAN.  
2022

10h00  
-  
11h00

### **SÉMINAIRE BOURBAKI**

**Alexandros Eskenazis — Average distortion embeddings, nonlinear spectral gaps, and a metric John theorem after Assaf Naor**

IHP  
Hermite

In this lecture we shall discuss some geometric applications of the theory of nonlinear spectral gaps. Most notably, we will present a proof of a deep theorem of Naor asserting that for any norm  $\|\cdot\|$  on  $\mathbf{R}^d$ , the metric space  $(\mathbf{R}^d, \sqrt{\|x-y\|})$  embeds into Hilbert space with quadratic average distortion  $O(\sqrt{\log d})$ . As a consequence, we will deduce that any  $n$ -vertex expander graph does not admit a  $O(1)$ -average distortion embedding into any  $n^{o(1)}$ -dimensional normed space.

NB: A youtube link is available on [bourbaki.fr](https://bourbaki.fr)

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**INSTITUT HENRI POINCARÉ**

11 rue Pierre et Marie Curie  
75231 Paris Cedex 05

**HORAIRES**

Lundi au vendredi : 8h30 à 18h  
Fermé les jours fériés