



**Physikalisches Kolloquium**  
**Einladung**

**Physics Colloquium**  
**Invitation**

**Monday, 08 June 2020**

Lecture Hall N24/H13, 16:15

Coffee and cookies will be served in front of the lecture hall from 16:00

**Einstein and the History of Noise**

**Prof. Leon Cohen**

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 [WEBPAGE](#)



"Noise" had a glorious birth. While there were rumblings before 1905, it was Einstein's explanation of Brownian motion that started the field. His motivation was not the mere explanation of the erratic movement of pollen, but a much bigger aim: it was to show that noise could establish the existence of atoms. Immediately after Einstein, there was an incredible flurry of ideas of the most profound kind that continues to this day. Within three years, Langevin started the field of stochastic differential equations, although that was not his motivation. There was Smoluchowski, Furth, Lord Rayleigh, Campbell, Rice, Lorentz, Ornstein, Uhlenbeck, Chandrasekhar, Johnson, Schottky, Nyquist, and many more who laid both the foundations and applications of "noise" to many fields. The historical twists are fascinating.

But noise, considered by many as unwanted, and mistakenly defined as such by some, has little respectability. The term itself conjures up images of rejection. Everyone builds filters to stop it and few have love affairs with it. Yet, it is an idea that has served mankind in the most profound ways. It would be a dull gray world without noise.

The story of noise is a fascinating one, and while in its early stages its story was clearly seen, its subsequent divergence into many subfields has largely resulted in a lack of understanding of its historical development. We will try to give it some justice. We will discuss who did what, when, and why, the historical misconceptions, and the reasons for the impact on so many fields. But most importantly, to show that the history of noise is a tale worth telling.