AL-FARABI KAZAKH NATIONAL UNIVERSITY

International Relations Department

Chair of Diplomatic Translation

**Translation business in the field of international and legal relations**

**“Practice of Simultaneous Interpreting ”**

2024-2025 academic year fall semester

**Lecture 9**

**Speed considerations. Acoustic.**

Sound barrier is one of the main measures to prevent and control [railway noise](https://www.sciencedirect.com/topics/engineering/railway-noise) pollution and has been widely used in [railway construction](https://www.sciencedirect.com/topics/earth-and-planetary-sciences/railway-construction). Reasonable sound barrier design can effectively reduce noise in the section suitable for sound barrier.

When railway noise produces noise pollution to the existing or planned sensitive building concentrated area, noise prevention measures of sound barrier can be generally adopted. In newly built passenger dedicated lines and intercity railways, priority can be given to sound barrier prevention measures. The form and structure of the sound barrier should be designed in accordance with the form of the line and environmental conditions and make full use of the favorable factors such as the surrounding terrain and objects and the abandoned soil of the project. It is absolutely forbidden to simply imitate and mechanically copy the sound barrier regardless of the specific situation.

The design and product standardization of sound barrier should be realized as soon as possible according to line types, structures, and noise reduction requirements. The length, height, and structure of the sound barrier should be further optimized in the preliminary design stage. The sound barrier on the bridge should be integrated with the overall design of the bridge structure. Noise reduction engineering such as sound barrier should be designed in accordance with relevant design specifications, closely combined with railway engineering, and fully considering the requirements of traffic safety, landscape, and other aspects.

[Sound velocities](https://www.sciencedirect.com/topics/physics-and-astronomy/acoustic-velocity) in rocks also depend on the state of stress. To some extent, this effect can be ascribed to stress-induced changes in porosity. However, this is not sufficient to explain the stress sensitivity of velocities in most rocks. Fig. 5.7 shows the typical behaviour for a sandstone. The behaviour can be understood in terms of microcracks (much smaller than the wavelength) that are opened or closed by the action of the stress. An open crack strongly reduces the velocity of a wave if the crack is oriented normal to the direction of propagation or polarisation of the wave, whereas its effect on the velocity is only marginal otherwise

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