

EDITORIAL

Dear reader,

Who thinks of physics or neurobiology when listening to “Bad Guy” by Billie Eilish or Beethoven’s Ninth Symphony? Instead, we let the sounds transport us, the voices touch our emotions, and the rhythms carry us away. But before any of that can happen, we first have to actually perceive sound. Sound reaches our ears in the form of waves; it is converted to electrical signals, which are then unscrambled by our brain’s busy switchboards. This last sentence may admittedly sound a bit flippant. But this is how one of the researchers featured in our “Focus” article describes the essence of his work – and it is far from trivial. What actually happens in our brain when it processes sound? Why do we perceive some tones or sounds as pleasant and others as unpleasant? And what’s behind the success of hit songs like “Yesterday?”

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From the melancholy and gentle Beatles song, we move on to the raw reality of the animal kingdom. When dusk falls, the great hunt begins. Bats swoop through the air in search of prey. The animals use ultrasound to locate their targeted prey even in complete darkness. They have developed sophisticated hunting methods to ensure that moths and grasshoppers do not escape them. But the creatures they hunt have their own defenses.

Speaking of ultrasound: we experience its practical application on our own bodies, for example during a thyroid gland examination. But how else can ultrasonic frequency help us? In fact, scientists are using ultrasound to join particles into three-dimensional structures. And such acoustic holograms are far more than just gimmicks. One day, they could be used to produce artificial tumors or organoids for testing pharmaceuticals, and in this way, probably also reduce the number of animal tests.

We wish you an exciting reading experience full of surprising insights!

Your editorial team