Thus, there are time-dependent magnetic forces acting locally on the strings of an electric guitar due to the interaction of the magnetic field(s) of the pickups of the electric guitar with the magnetized strings of the electric guitar.

If the pickup height is adjusted such that the strings are very close to the magnetic poles of the pickup, the magnetic force(s) acting on the string(s) can become large enough such that they noticably interfere with the natural vibration(s) of the strings - causing a noticable shift in the pitch (i.e. frequency) of the vibrating string - lowering it, and also altering the harmonic content of the string in a time-dependent manner. If the string height is adjusted such that they are too close to the pickups of the electric guitar, this can create an unpleasant, time-dependent warbling-type tone output from the guitar.
These warbling-type tones are also known as wolf-tones. Stratocaster guitars, having 3 pickups, are particularly susceptible to this problem, if the pickups are adjusted such that they are too close to the strings of the guitar, and especially so for notes plated on the G and B strings.

Overall Damping Time Constant

We have discussed a number of physical processes which cause damping of the vibrations of strings on a guitar - viscous air damping of the string, internal damping of the string vibrations, damping effects due to build-up of foreign material ("grunge") on the strings of the guitar, magnetic damping effects due to the Eddy currents induced in the metal strings of the electric guitar vibrating near the magnetic poles of the guitar pickups, and magnetic damping due to B-H hysteresis loss minor cycle-type effects due to the magnetically permeable strings of the electric guitar vibrating in the magnetic field(s) of the guitar pickups.

Because the damping of standing waves on a guitar occurs in the argument of exponential terms, e.g.

$$\begin{aligned} y(x,t) &= y_o e^{i(\omega t 0 kx)} e^{-t/\tau_1} e^{-t/\tau_2} e^{-t/\tau_3} e^{-t/\tau_4} \ldots\ldots e^{-t/\tau_n} \\ &= y_o e^{i(\omega t 0 kx)} e^{-t[1/\tau_1 + 1/\tau_2 + 1/\tau_3 + \ldots\ldots + 1/\tau_n]} \end{aligned}$$

For n damping time constants, then from the above expression we see that an overall damping time constant can be defined as

$$\frac{1}{\tau} = \sum_{i=1}^{i=n} \frac{1}{\tau_i} = \frac{1}{\tau_1} + \frac{1}{\tau_2} + \frac{1}{\tau_3} + \ldots . + \frac{1}{\tau_n}$$