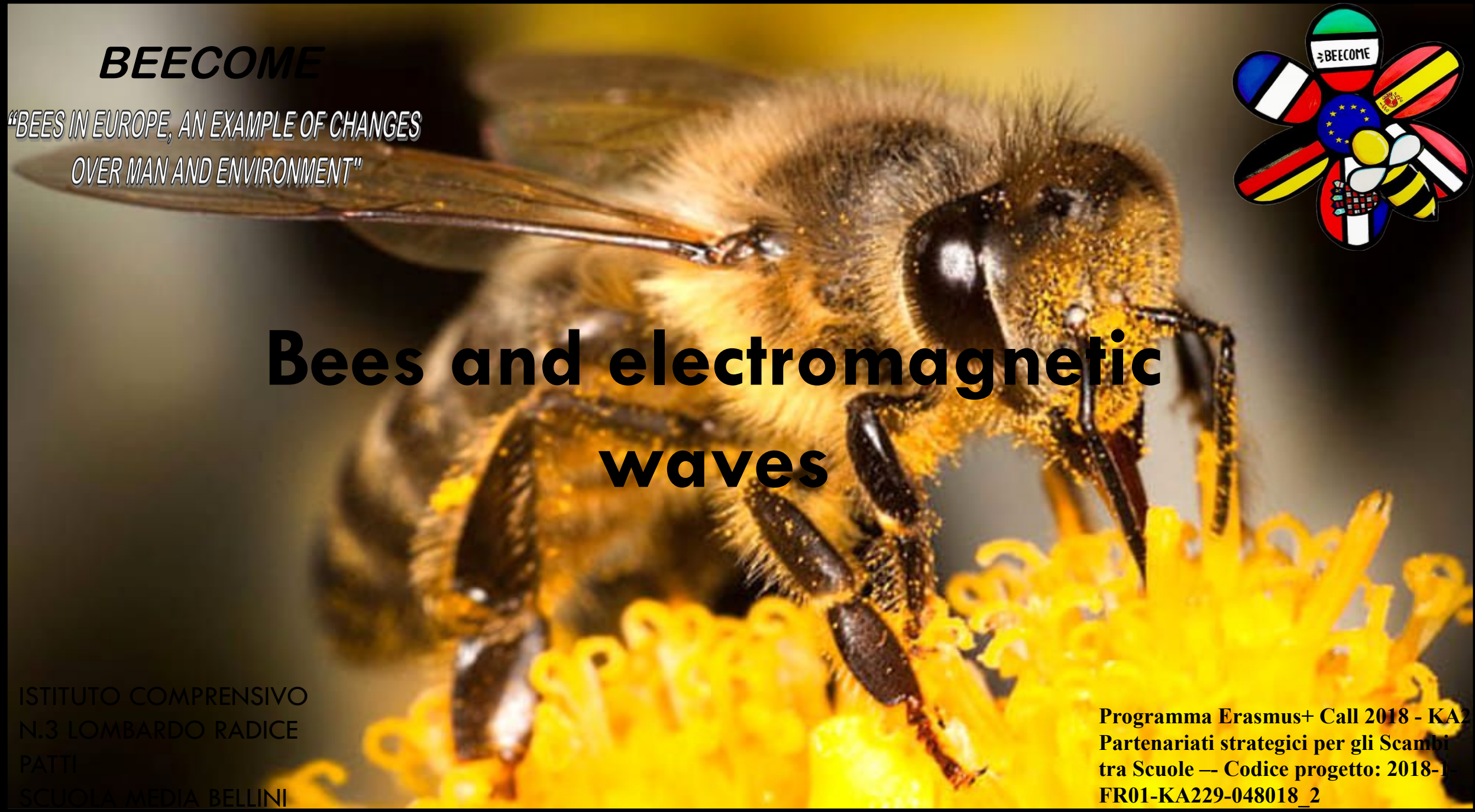


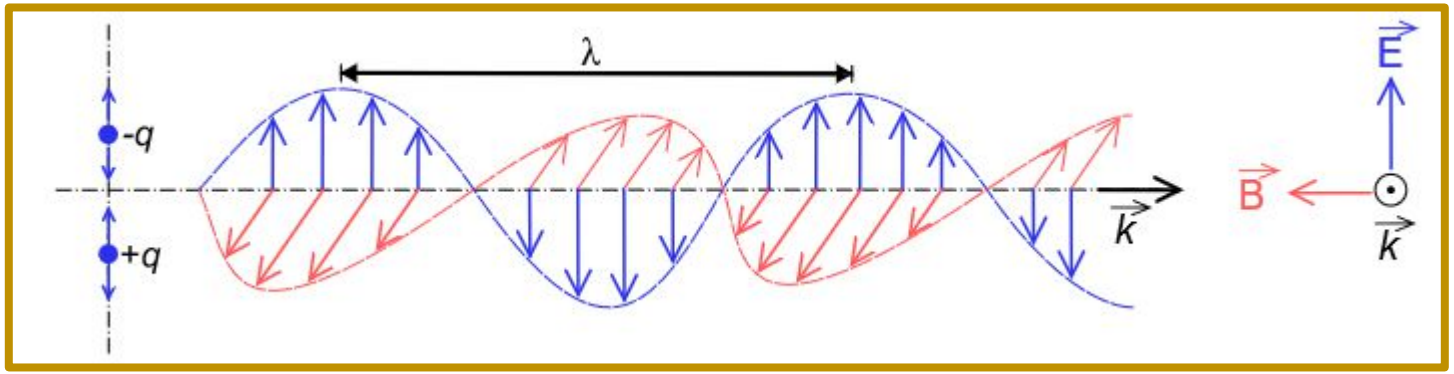
Bees and electromagnetic waves

ISTITUTO COMPRENSIVO
N.3 LOMBARDO RADICE
PATTI
SCUOLA MEDIA BELLINI

**Programma Erasmus+ Call 2018 - KA2
Partenariati strategici per gli Scambi
tra Scuole –- Codice progetto: 2018-1
FR01-KA229-048018_2**

What are electromagnetic waves

Electromagnetic radiation, is a form of energy emitted by moving charged particles. As it travels through space it behaves like a wave, and has an oscillating electric field component and an oscillating magnetic field. These waves oscillate perpendicularly to and in phase with one another..

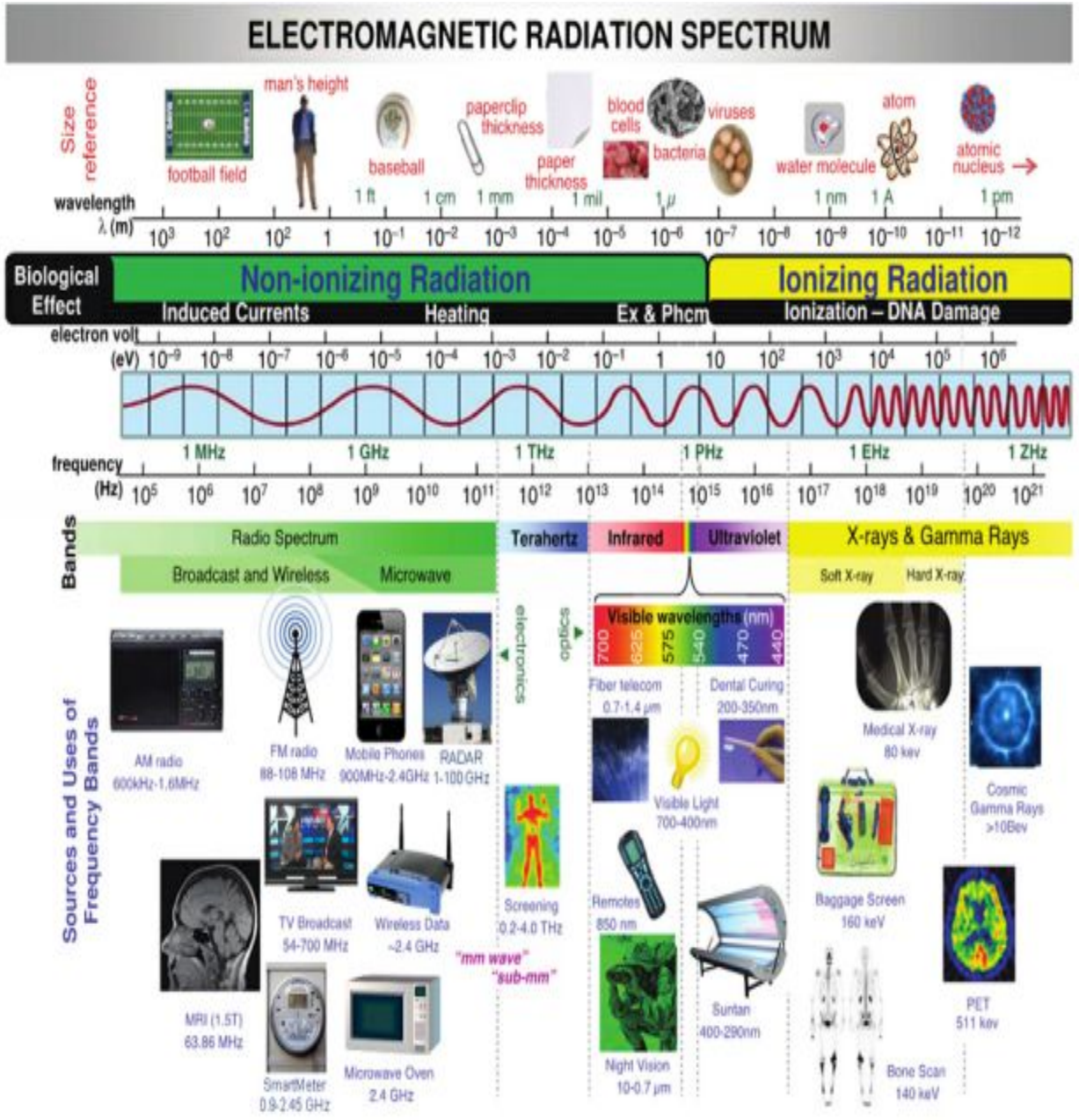


***Electromagnetic Wave**: Electromagnetic waves are a self-propagating transverse wave of oscillating electric and magnetic fields. The direction of the electric field is indicated in blue, the magnetic field in red, and the wave propagates in the positive x-direction. Notice that the electric and magnetic field waves are in phase.*

Electromagnetic pollution

The pollution deriving from electromagnetic fields is one of the most debated issues, especially as regards the risks and effects on the environment and on the health of us all. Every day we are exposed to electric and electromagnetic fields generated by polluting sources such as electrical systems and antennas.

For electromagnetic pollution, or electrosmog, we mean the generation of artificial electric , magnetic and electromagnetic fields produced by the technologies used by man that modify the natural electromagnetic background of the earth.

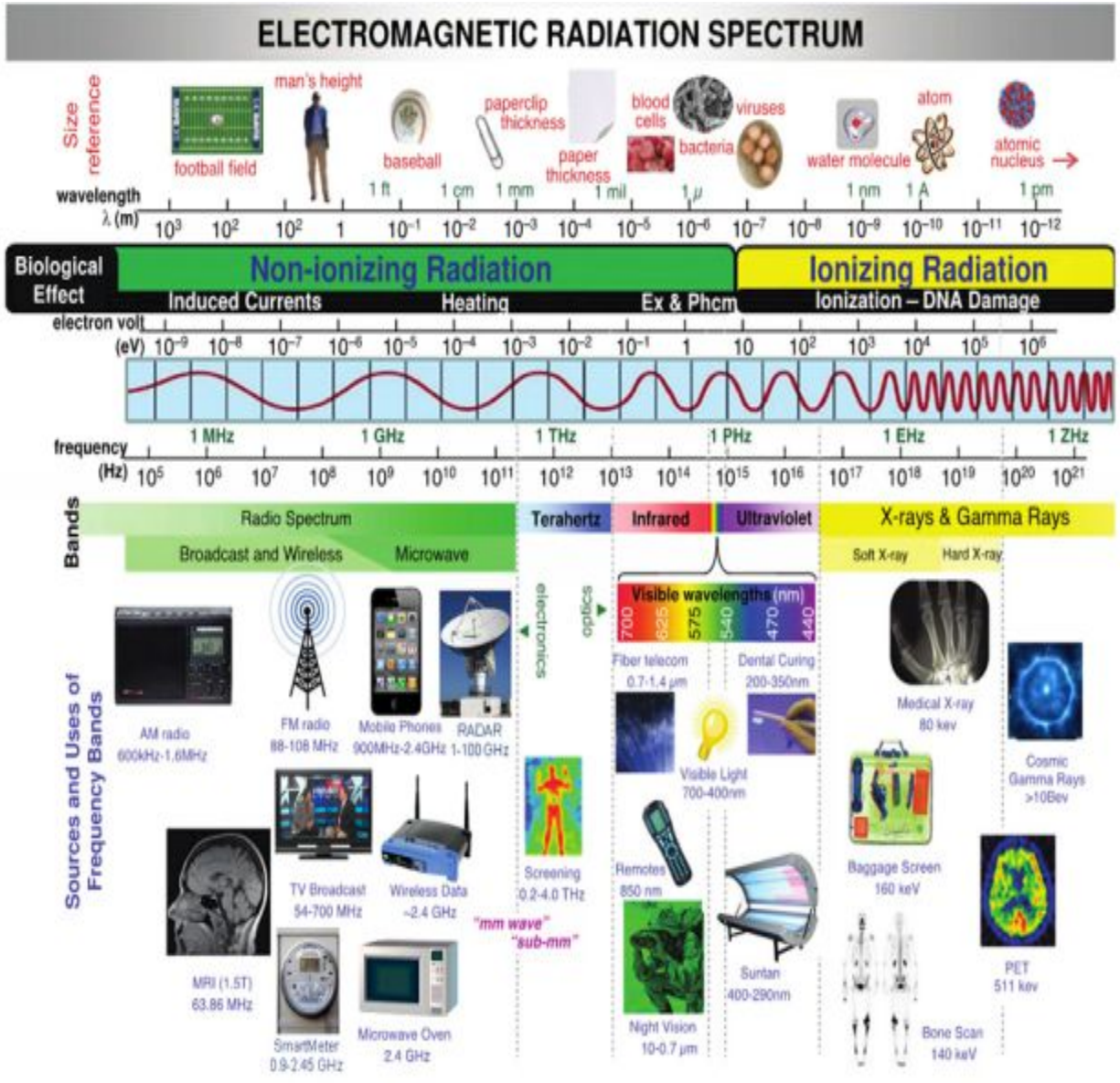


Eletromagnetic pollution

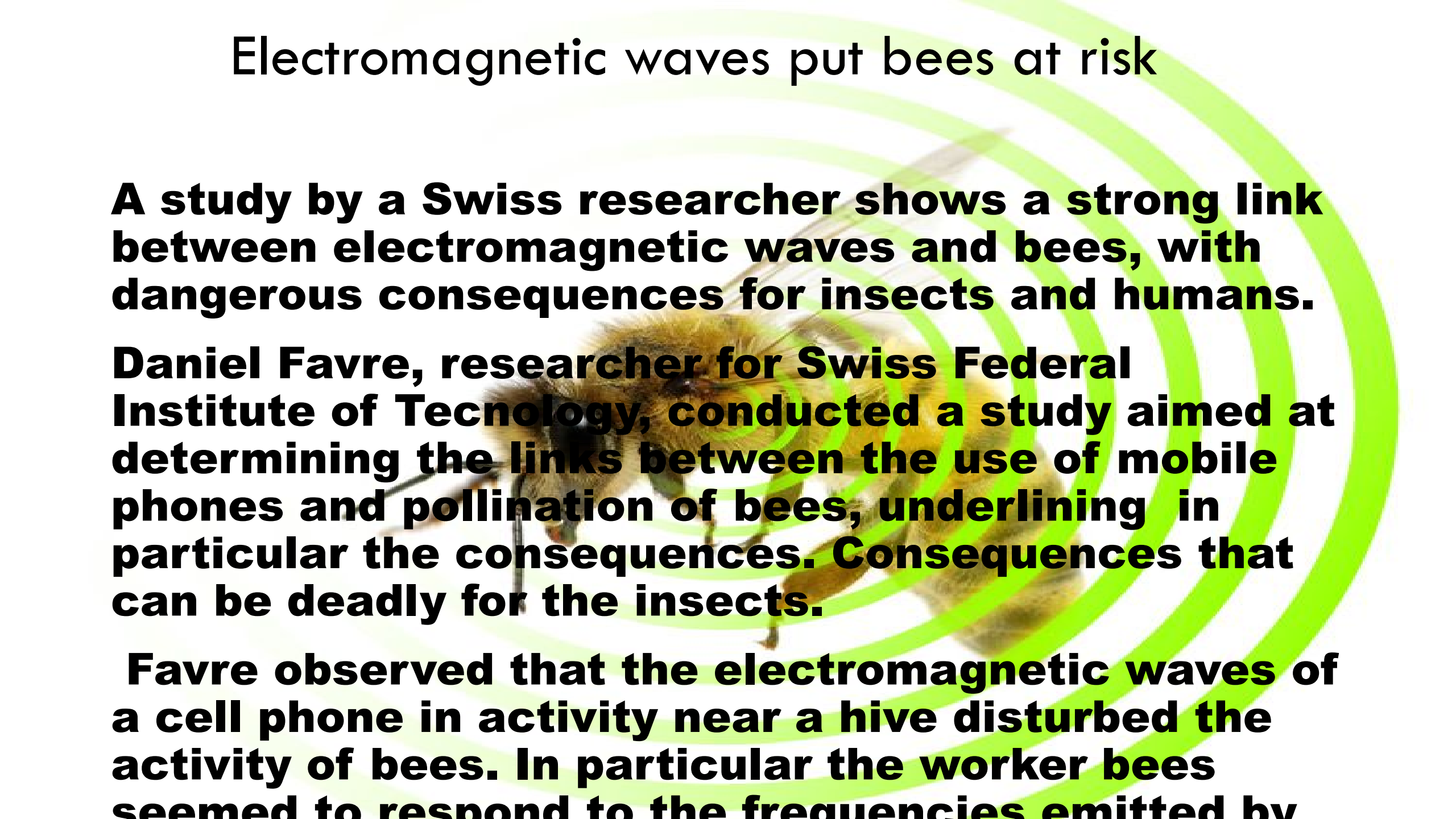
The causes of electromagnetic pollution are:

- Power lines for the transport of electricity
- Radio and television signals
- Biomedical equipment
- Industrial processing plants
- Appliances and devices that need electricity

The fields generated in this way



Electromagnetic waves put bees at risk



A study by a Swiss researcher shows a strong link between electromagnetic waves and bees, with dangerous consequences for insects and humans.

Daniel Favre, researcher for Swiss Federal Institute of Tecnology, conducted a study aimed at determining the links between the use of mobile phones and pollination of bees, underlining in particular the consequences. Consequences that can be deadly for the insects.

Favre observed that the electromagnetic waves of a cell phone in activity near a hive disturbed the activity of bees. In particular the worker bees seemed to respond to the frequencies emitted by

Piping

Favre observed that the electromagnetic waves of a cell phone in activity near a hive disturbed the activity of bees. In particular the worker bees seemed to respond to the frequencies emitted by the cell (piping) they usually associated these frequencies with an intrusion of strangers into the hive or swarming, while under control this hum was completely absent. Piping is a sound that is not frequently reproduced by bees under normal conditions.

Piping

Piping in Favre's observations always started about 30 minutes after the cell began to transmit. When it was left on for short periods (about 45 minutes) the normal hum of the hive (without piping) re-established in 2-3 minutes. When instead it remained active for a longer period, about 20 hours, after 12 hours from the end of the activity of the device the buzzing of the hive remained more intense and higher in frequency even after 12 hours. According to Favre the sensitivity to electromagnetic radiation of bees could be explained by the presence of magnetite crystals in the animal's body fat.

CCD

(distorder of colonies collapse)

This study confirmed the phenomenon of massive abandonment of beehives which started 2003 and is decimating the world population of this important pollinator insect.

“I think having land and not ruining it is the most beautiful art that anybody could ever want.”

Andy Warhol