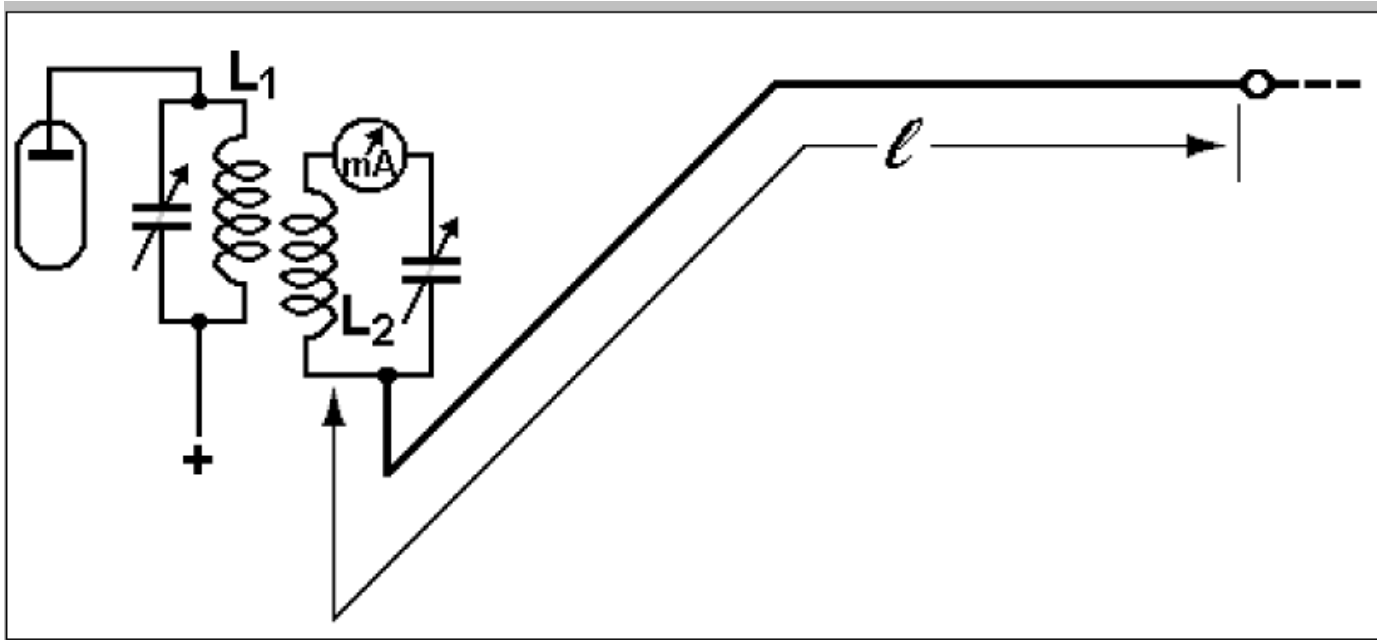


Renaissance of the Fuchs resonant antenna

by Jure Mikelc, S52CQ,
and Bostjan Rebernik, S52FT

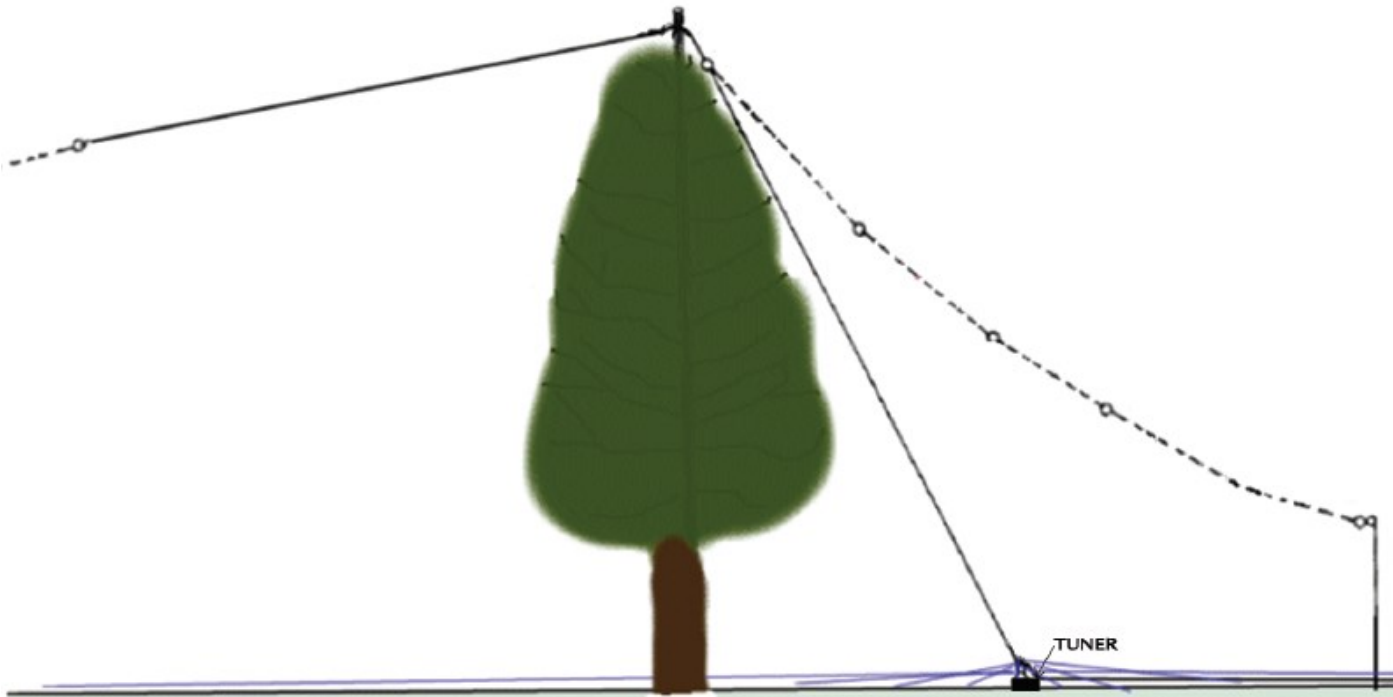
Renaissance of the Fuchs resonant antenna

- The Fuchs antenna has been known for many years and can be seen in the figure below (image taken from 'Antennenbuch', Karl Rothammel)



Renaissance of the Fuchs resonant antenna

- It's in the shape of an inverted L, the length of the radiating element is $\lambda/2$ and it is fed through a resonant circuit. The resonant circuit should have high Q, which especially impacts the coil selected. The higher the Q, the higher the efficiency of the antenna!



The Fuchs antenna has not been used much because:

- It needs to be retuned every few kHz
- Tuning is generally done remotely

But tuning is actually the advantage of the Fuchs antenna!

- Narrowly tuned antenna functions as a preselector

More advantages of the Fuchs antenna

- Since it is end-fed it can be pulled across trees very easy
- Its performance does not vary much with respect to distance above ground in contrast to dipole or inverted V antennas
- It has reception 1 to 2 S units better than a dipole with less received noise

Practical SOTA Fuchs antenna

- A SOTA Fuchs antenna consists of $\lambda/2$ wire
- QRP ATU



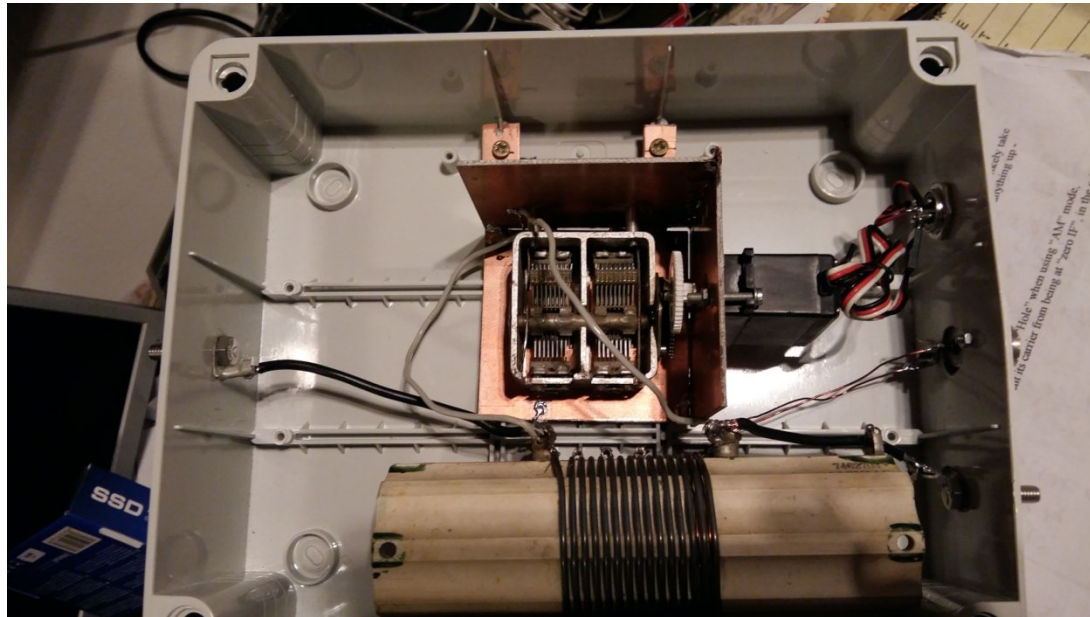
Practical SOTA Fuchs antenna

- A Fuchs antenna and QRP ATU during SOTA activation by Bostjan, S52FT



Practical Fuchs base station antenna

- Remotely controlled ATU for a base station Fuchs antenna



Servo motor (controlled from the shack by a small AVR microcontroller) drives a variable capacitor for optimal antenna resonance.

Final thoughts

The Fuchs antenna has many great features:

1. Due to a high-Q LC circuit, the Fuchs antenna is optimally tuned to 50 Ohms coax and hence has high efficiency
2. Since it is end fed, its installation for portable operation is easy, only a single wire must be installed over a tree in the shape of an inverted L or inverted V
3. Quick “tuning by ear” makes portable operation easy and quick
4. Its inverted L or V installation is impacted very little by height above ground
5. It features a signal 1 to 2 S units better than a dipole
6. Easy upgrade to other bands – with plug-in sockets
7. Low price

Thank you for your attention

Please visit the ZRS (National HAM Radio Society of Slovenia), Hall A1, Booth 243 for more information