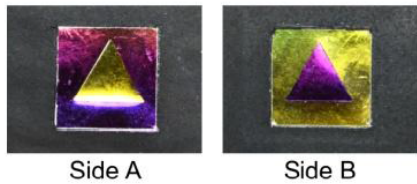




## OPTICAL FILTER ANTI-COUNTERFEITING SECURITY DEVICES



### Background

The fight against counterfeiting constantly needs to evolve to counteract counterfeiters that keep showing more and more ingenuity. Indeed, despite the constant arrival of new authentication technologies, these technologies still end up being copied in one way or another. Paradoxically, for the industry, the challenge is to find new technologies always more complex (e.g. requiring specialized equipment or expertise), but which are easy to use for the consumer and for which the cost of production per product on a large scale remains negligible.

### Technology

Prof. Martinu's laboratory has developed a complete portfolio of security devices using optical filters made of thin layers, similar to those already present on our banknotes, but with more advanced functionalities. A first device takes advantage of the effect of metamerism: using interference effects we can produce different colors that appear identical under one angle and different under another. This allows creating images that can only be viewed when the product is tilted in some way and that are otherwise invisible. Another design adds an extra level of complexity by adding an electrochromic layer that changes color under the application of an electric current that can be supplied to the device by an integrated solar cell. Beyond this, it is also possible to increase the level of complexity by multiplying the colors (we have demonstrated a tricolor device) or by creating devices behaving differently depending on whether they are observed in reflection or transmission (on a transparent substrate).

### Application

Counterfeiting includes not only the manufacturing of false bank notes, but also forged credit cards, passports, and various identity documents. Consumer goods are also affected: luxury clothing, jewelry, software, video games, perfumes, wines/spirits, tickets, pharmaceuticals, and even car and plane parts.

### Competitive Advantages

Our devices are particularly interesting because they cannot be reproduced by printing (the main method used by counterfeiters) since they require specialized vacuum deposition equipment. Our devices are also easy to use for the consumer who can confirm authenticity at a glance.

### Patent

Issued patents in US, Canada, France, Germany, Switzerland and UK.

### Next Steps

Exclusive and non-exclusive licenses available.

### Contact

Chloe Archambault, Eng.  
Project Manager, Business development  
Sciences and Engineering  
Univalor  
+1 (514) 340-8523  
[chloe.archambault@univalor.ca](mailto:chloe.archambault@univalor.ca)

Ludvik Martinu, Ph.D.  
Professor  
Engineering Physics Department,  
Polytechnique Montreal  
+1 (514) 340-4711 ext 4099  
[ludvik.martinu@polymtl.ca](mailto:ludvik.martinu@polymtl.ca)

