

# FIBER OPTICS

How they are powering the World.



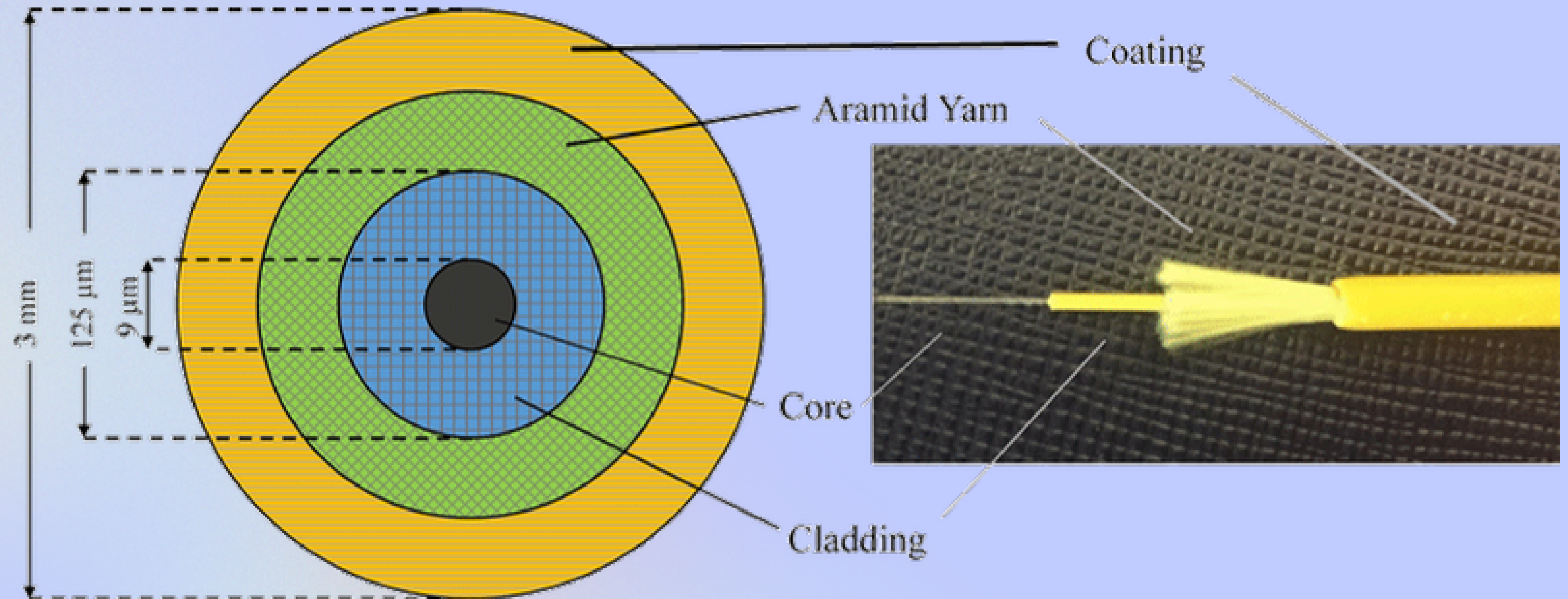
GRUPA 3

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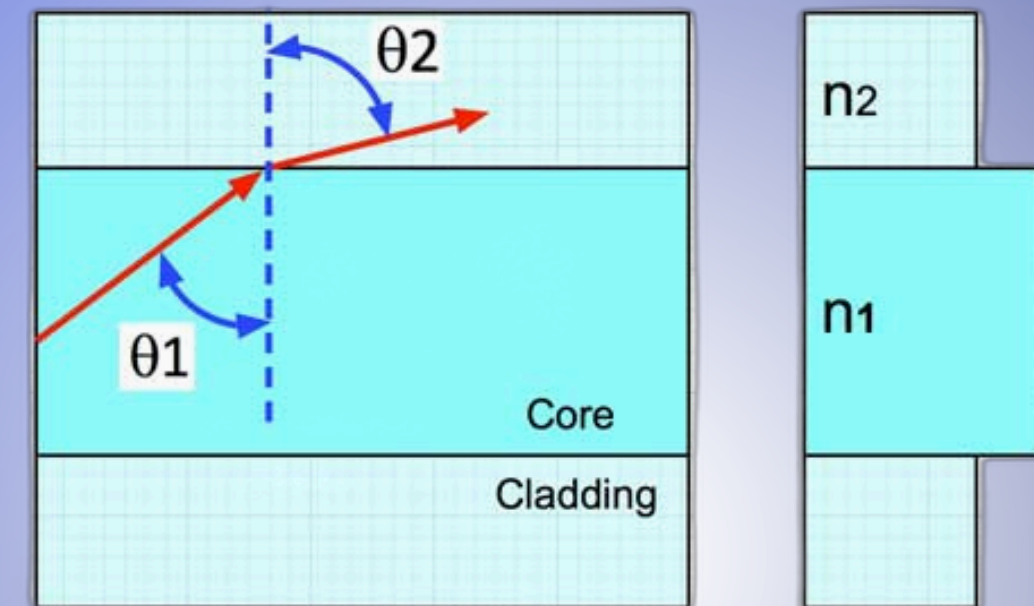
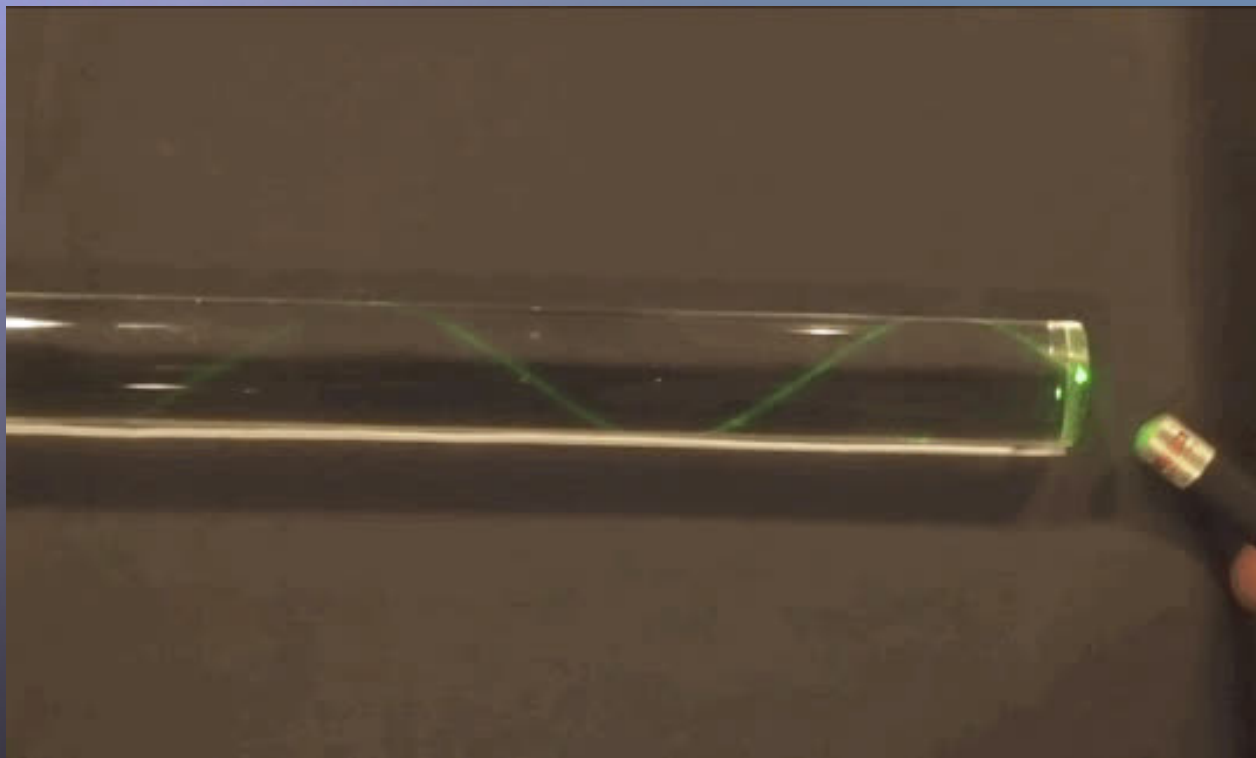
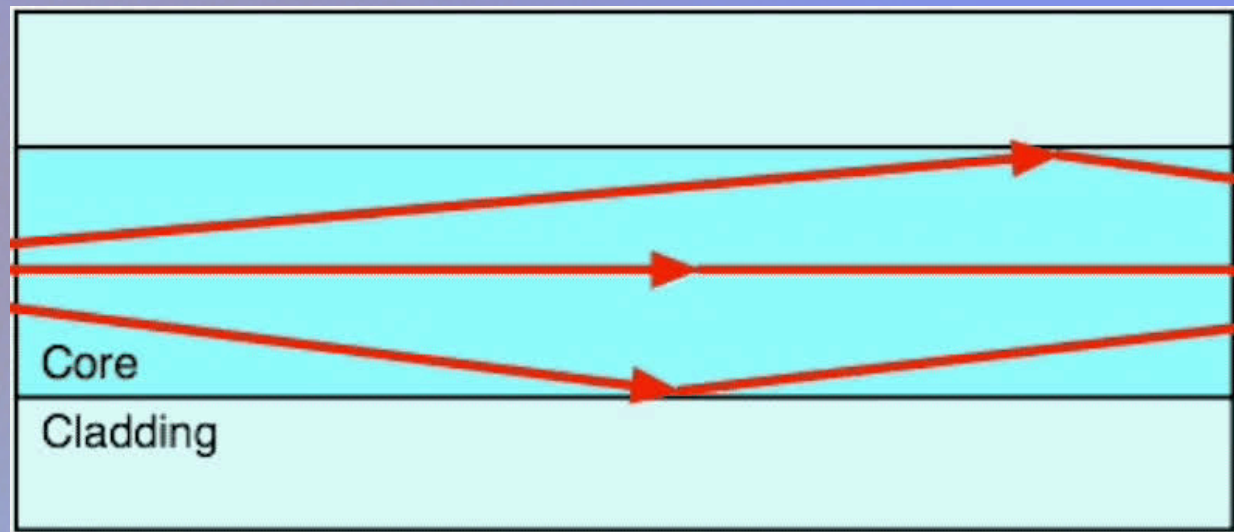
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# How is it built and what does it look like?





# Why doesn't the light escape?



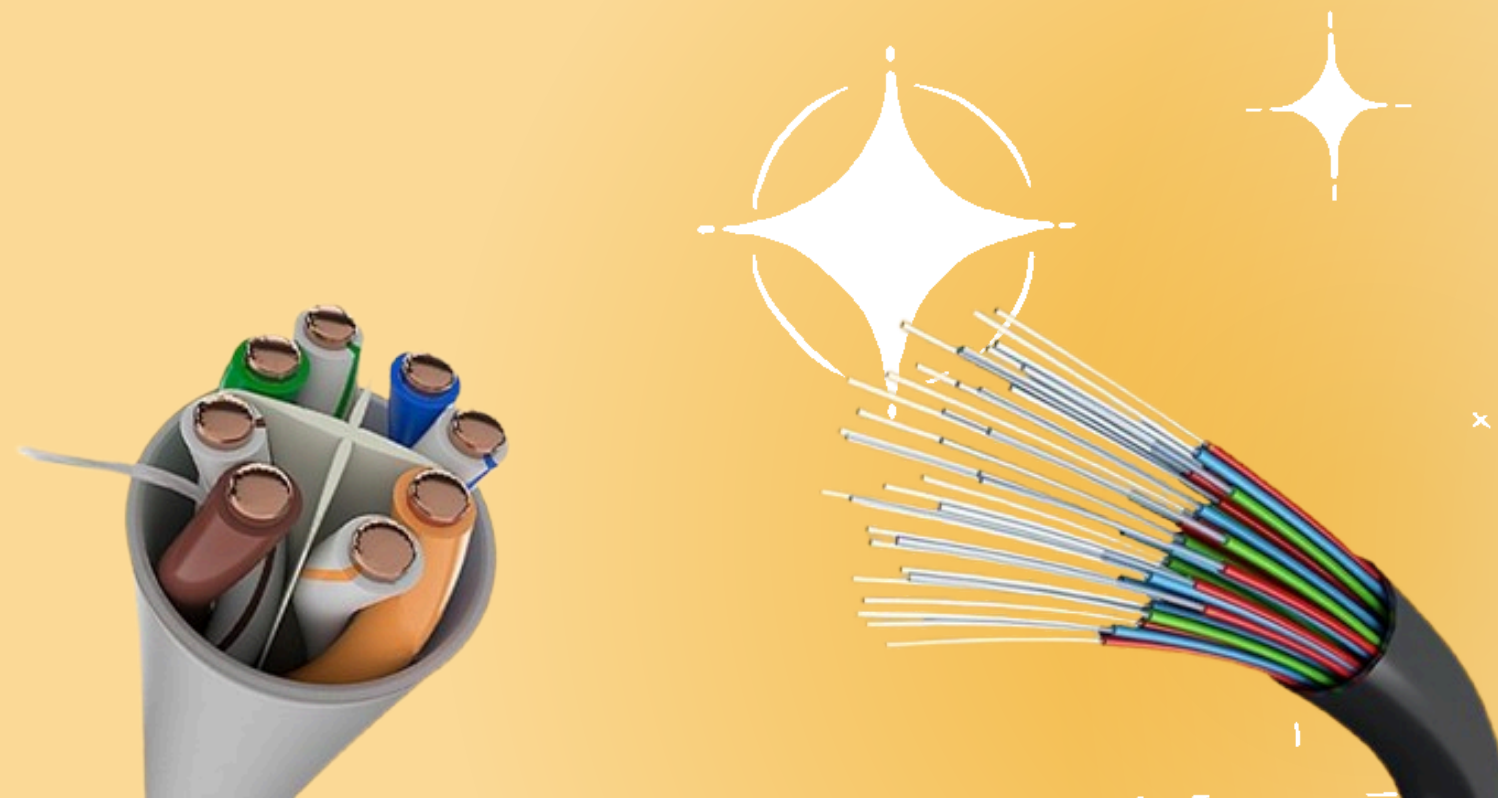
Snell's Law

$$n_1 \sin \theta_1 = n_2 \sin \theta_2$$

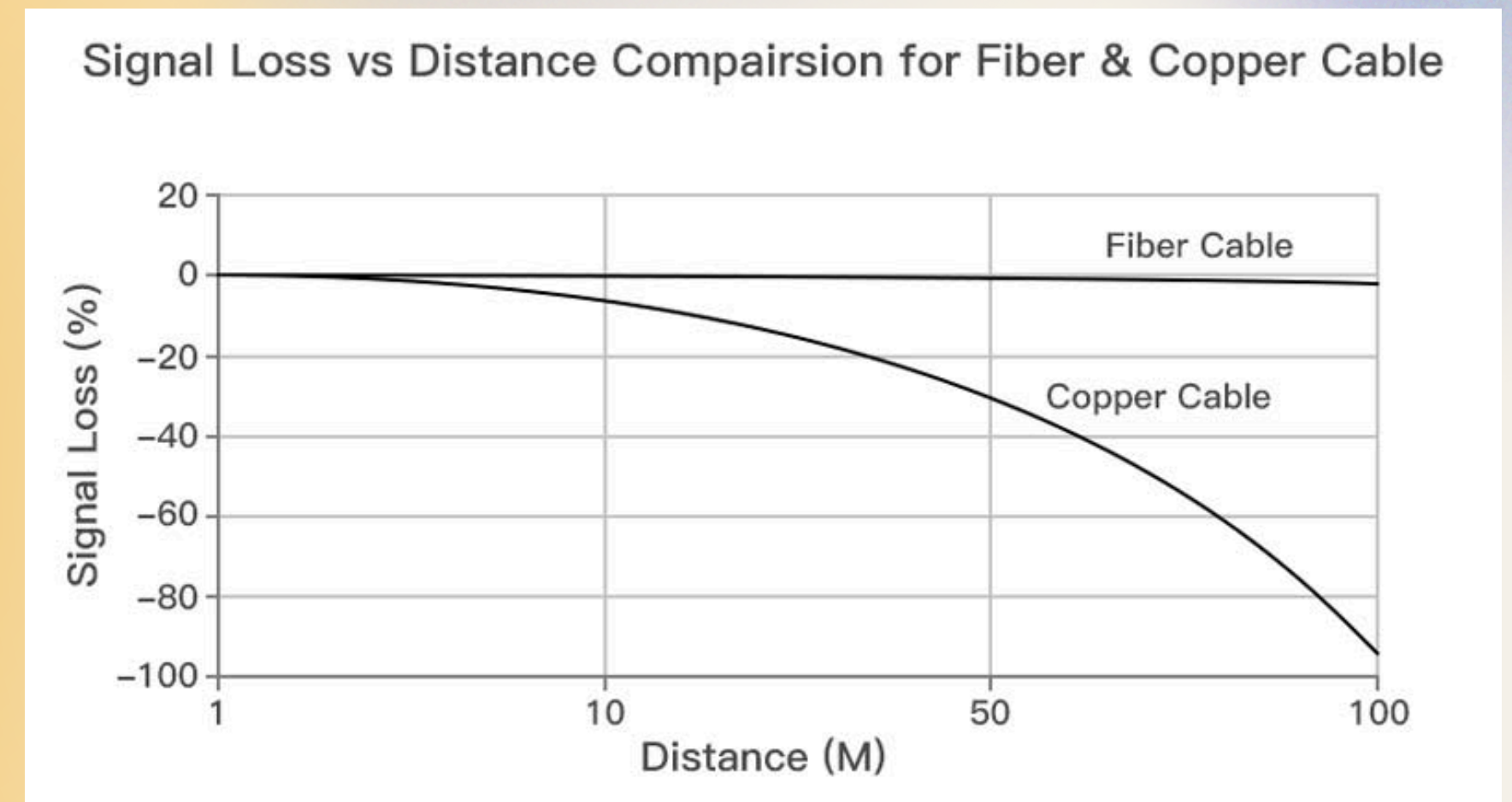


# WHY ARE FIBER-OPTIC CABLES FASTER THAN COPPER CABLES?

Fiber-optic cables are faster because they transmit data using light, while copper cables use electrical signals.



copper cable vs fiber-optic cable





# Advantages and disadvantages compared to copper

## Advantages:

- ★ Much higher bandwidth
- ★ No electromagnetic interference
- ★ Lightweight and thin
- ★ Low signal loss

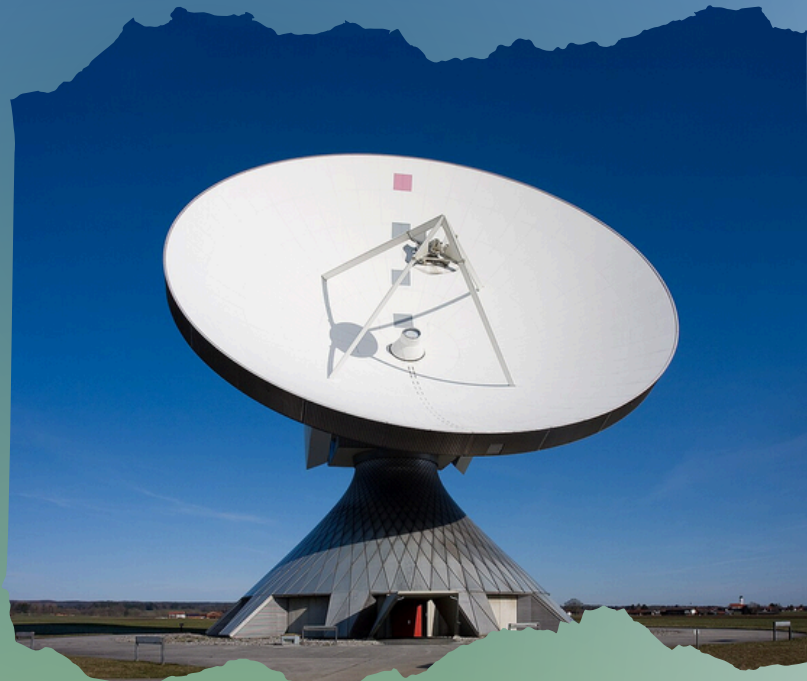
## Disadvantages:

- ★ More fragile than copper
- ★ Installation requires more precision
- ★ Equipment can be more expensive



# MAIN APPLICATIONS OF FIBER OPTICS

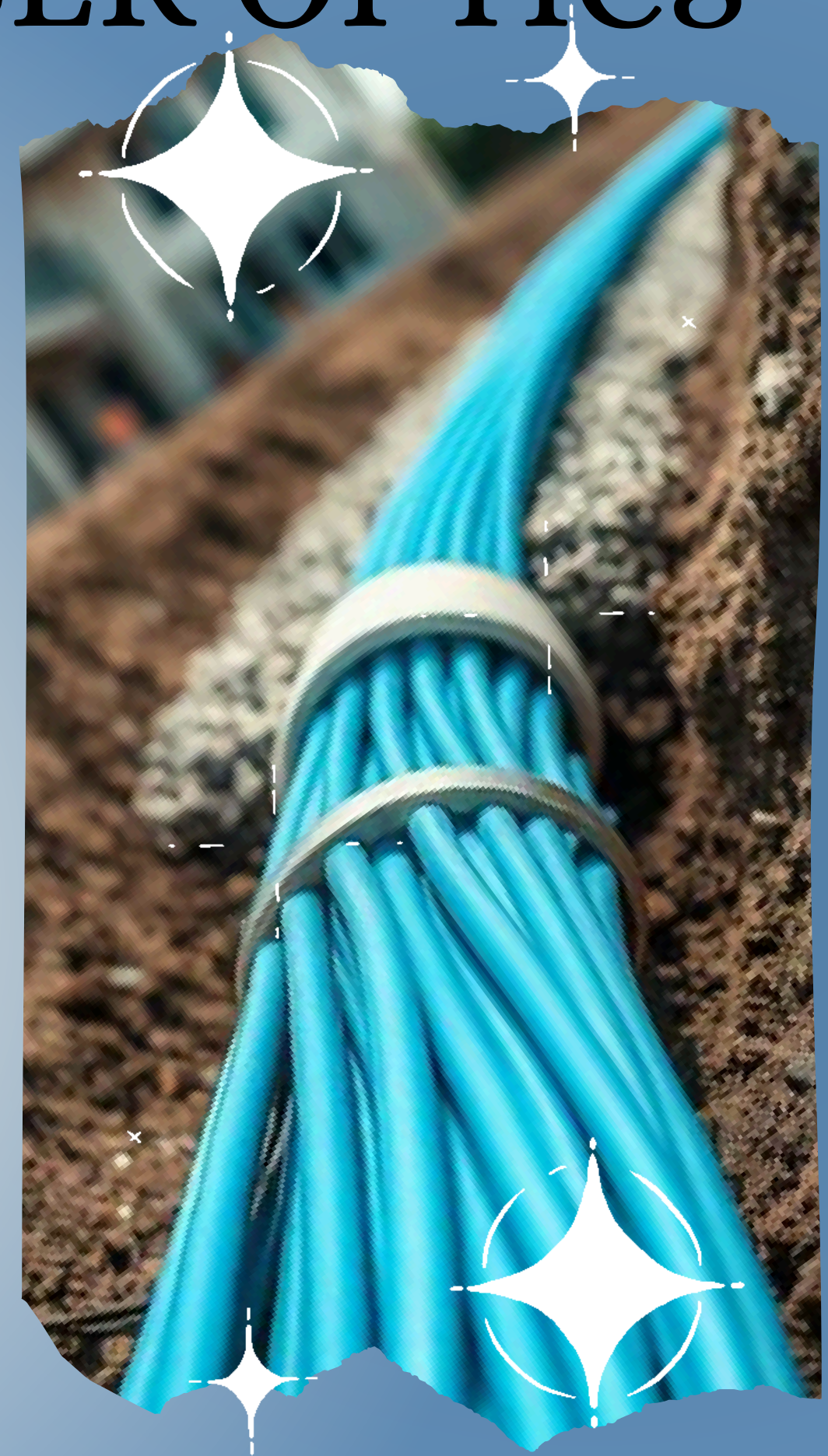
## ★ Telecommunications



## ★ Military & Aerospace



## ★ Medical Technology







# Bibliography

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Quizlet