# Umlenkrolle

### mit Kräften

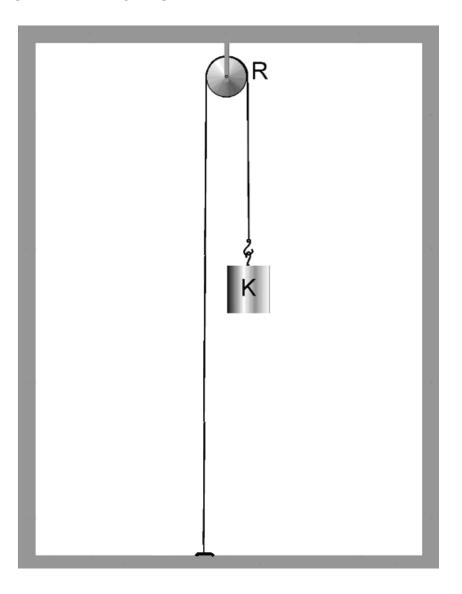
M. Pohlig



Wenn Newton das gewusst hätte...

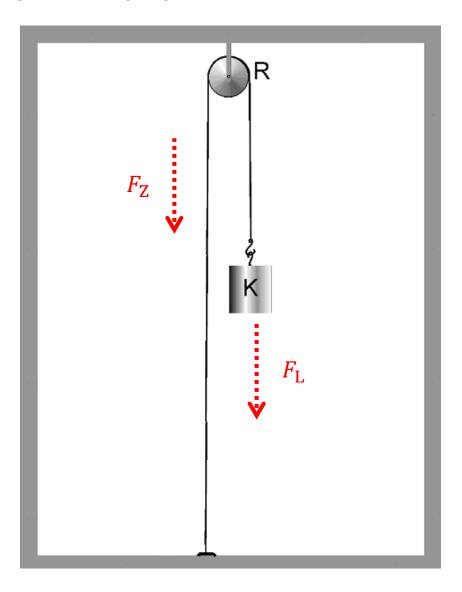
Karlsruhe 17.12.2013 Kontakt: pohlig@kit.edu



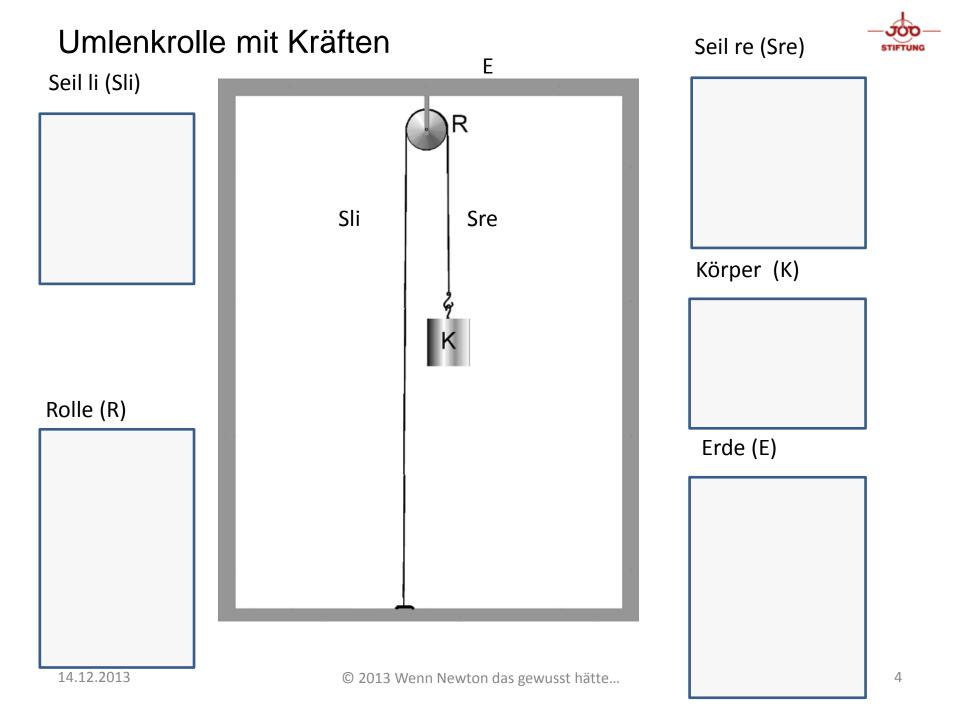


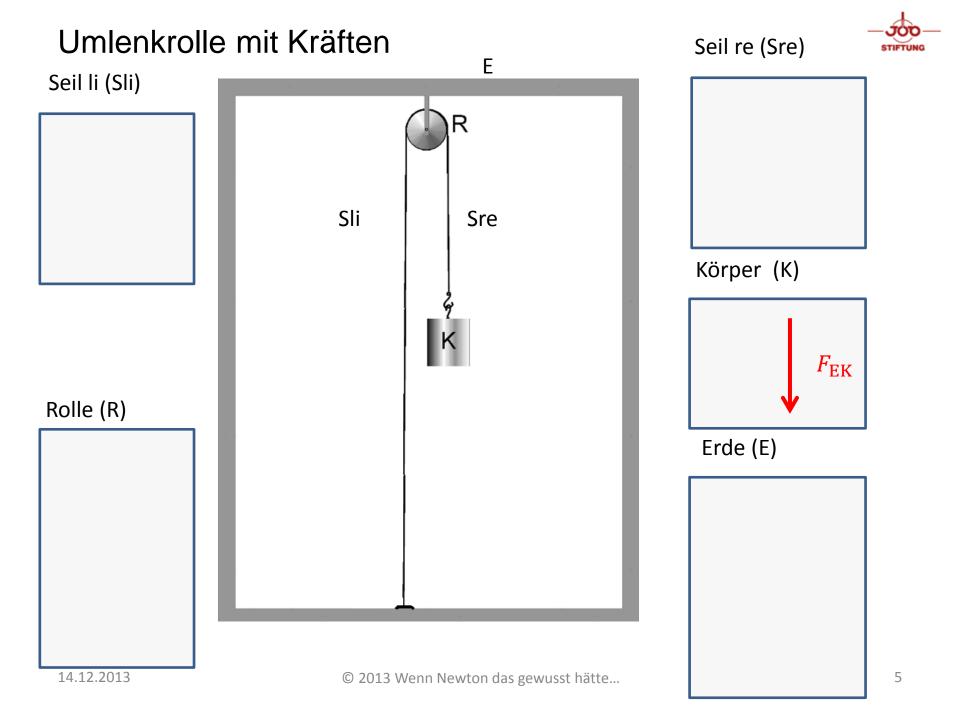
Lenkt die Umlenkrolle die Kraft um?





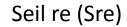
Lenkt die Umlenkrolle die Kraft um?





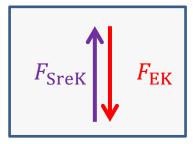
# Umlenkrolle mit Kräften Seil re (Sre) Ε Seil li (Sli) Sli Sre Körper (K) $F_{\rm EK}$ Rolle (R) Erde (E) $F_{\rm KE}$ 14.12.2013 © 2013 Wenn Newton das gewusst hätte... 6

# Umlenkrolle mit Kräften Ε Seil li (Sli) Sli Sre Rolle (R)

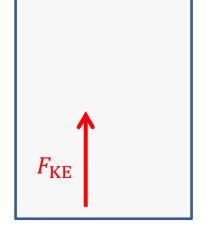




Körper (K)



Erde (E)



Ε

#### Seil re (Sre)

-JOO-

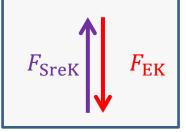




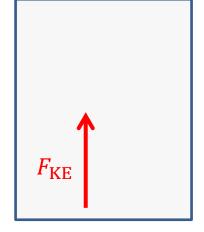
Sli Sre

F<sub>KSre</sub> **▼** 





Erde (E)



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Rolle (R)

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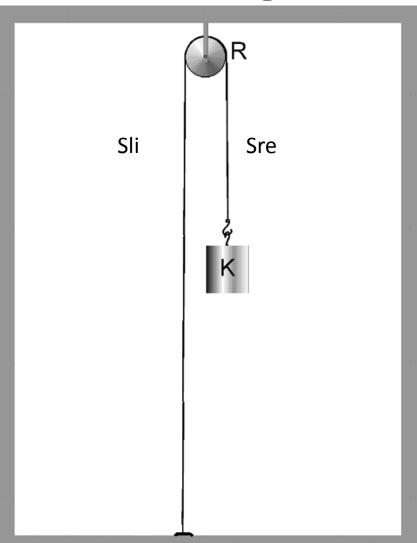
Ε

#### Seil re (Sre)



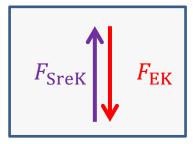




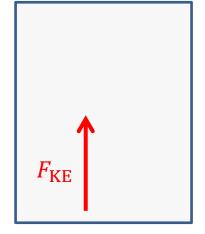


 $F_{\mathrm{KSre}}$   $F_{\mathrm{RSre}}$ 





Erde (E)



14.12.2013

Rolle (R)

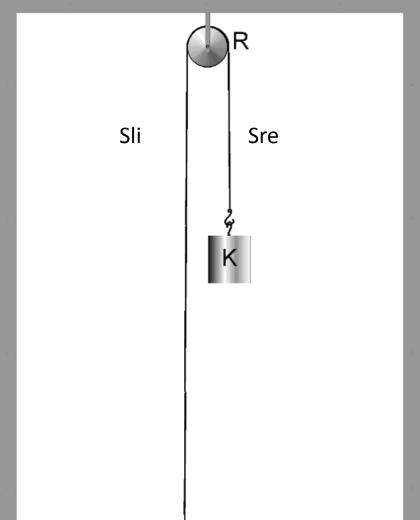
Ε

#### Seil re (Sre)

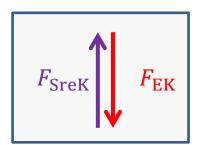






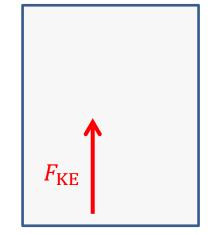


 $F_{\mathrm{KSre}}$ 



Erde (E)

Körper (K)



14.12.2013

Rolle (R)

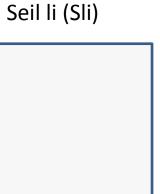
 $F_{SreR}$ 

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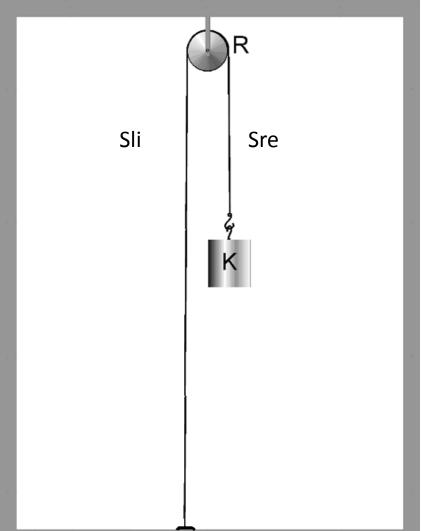
Ε

#### Seil re (Sre)



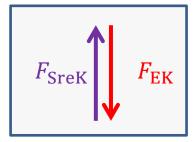




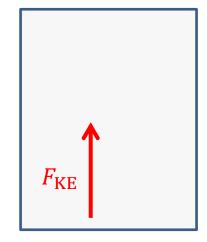


 $F_{\mathrm{KSre}}$   $F_{\mathrm{RSre}}$ 





Erde (E)



 $F_{
m SreR}$   $F_{
m SliR}$ 

Rolle (R)

14.12.2013

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Ε

#### Seil re (Sre)



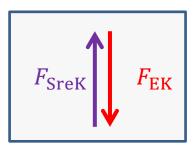




Sli Sre

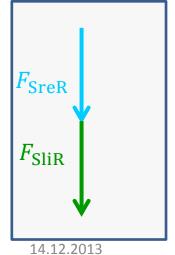
 $F_{\mathrm{KSre}}$   $F_{\mathrm{RSre}}$ 

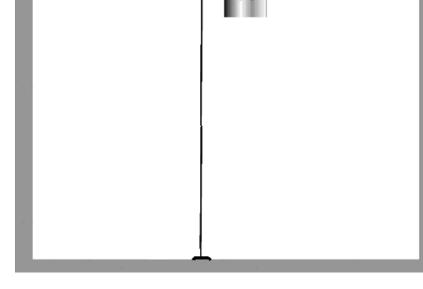
Körper (K)

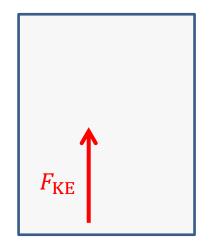


Erde (E)









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Seil re (Sre)



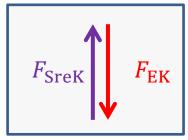




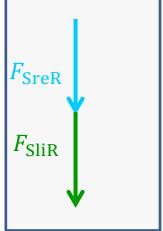
Sli Sre

Ε

Körper (K)



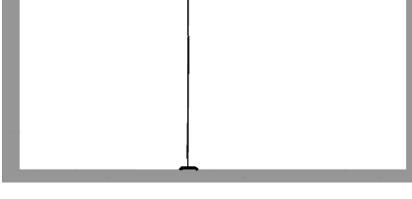
Erde (E)

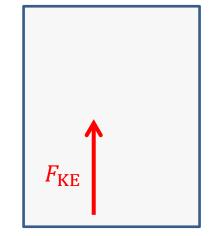


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Rolle (R)







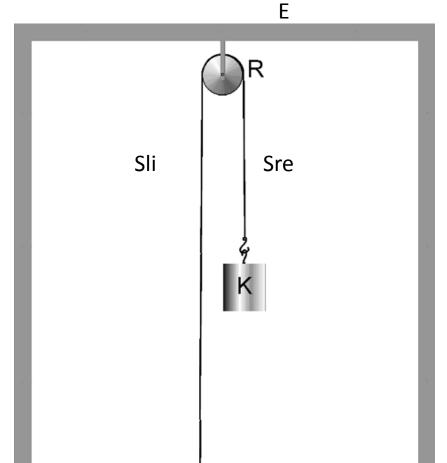
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Seil re (Sre)



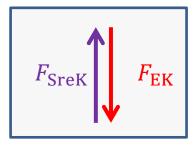




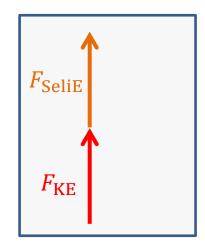


 $F_{\mathrm{KSre}}$   $F_{\mathrm{RSre}}$ 

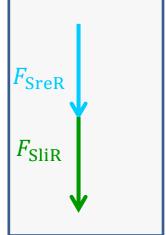
Körper (K)



Erde (E)



Rolle (R)

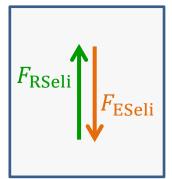


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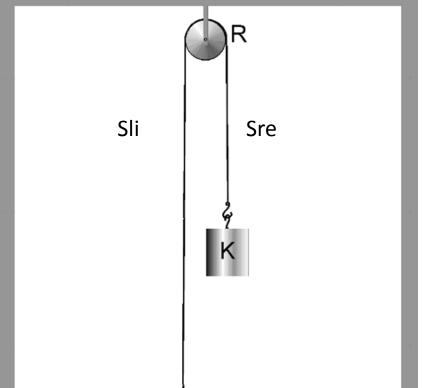
Seil re (Sre)



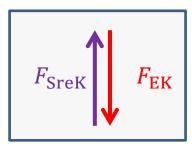




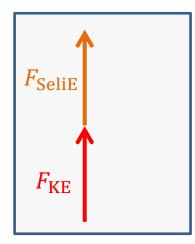
Ε



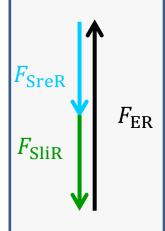
Körper (K)



Erde (E)



Rolle (R)



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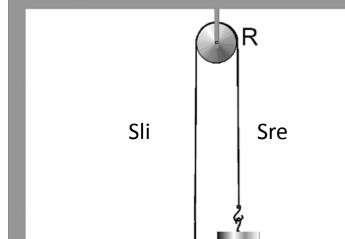
Ε

#### Seil re (Sre)

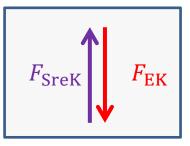




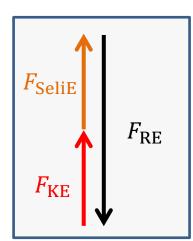




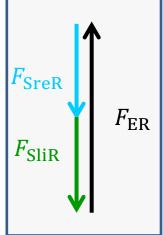
Körper (K)



Erde (E)



Rolle (R)

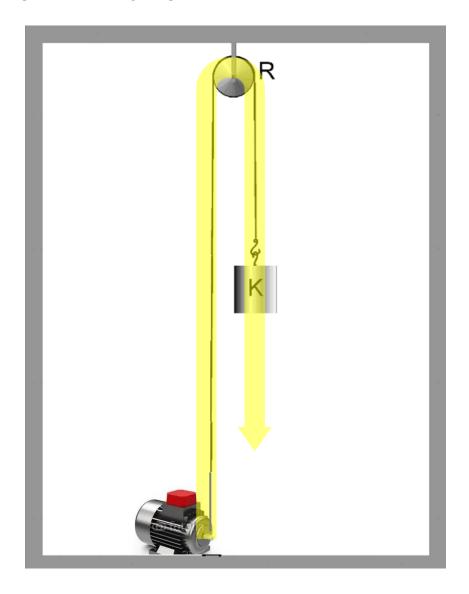


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Wer wird nun umgelenkt?

Das Seil!
Die Energie!

Aber nicht die Kraft!