



CRC

for

Premium

Quality

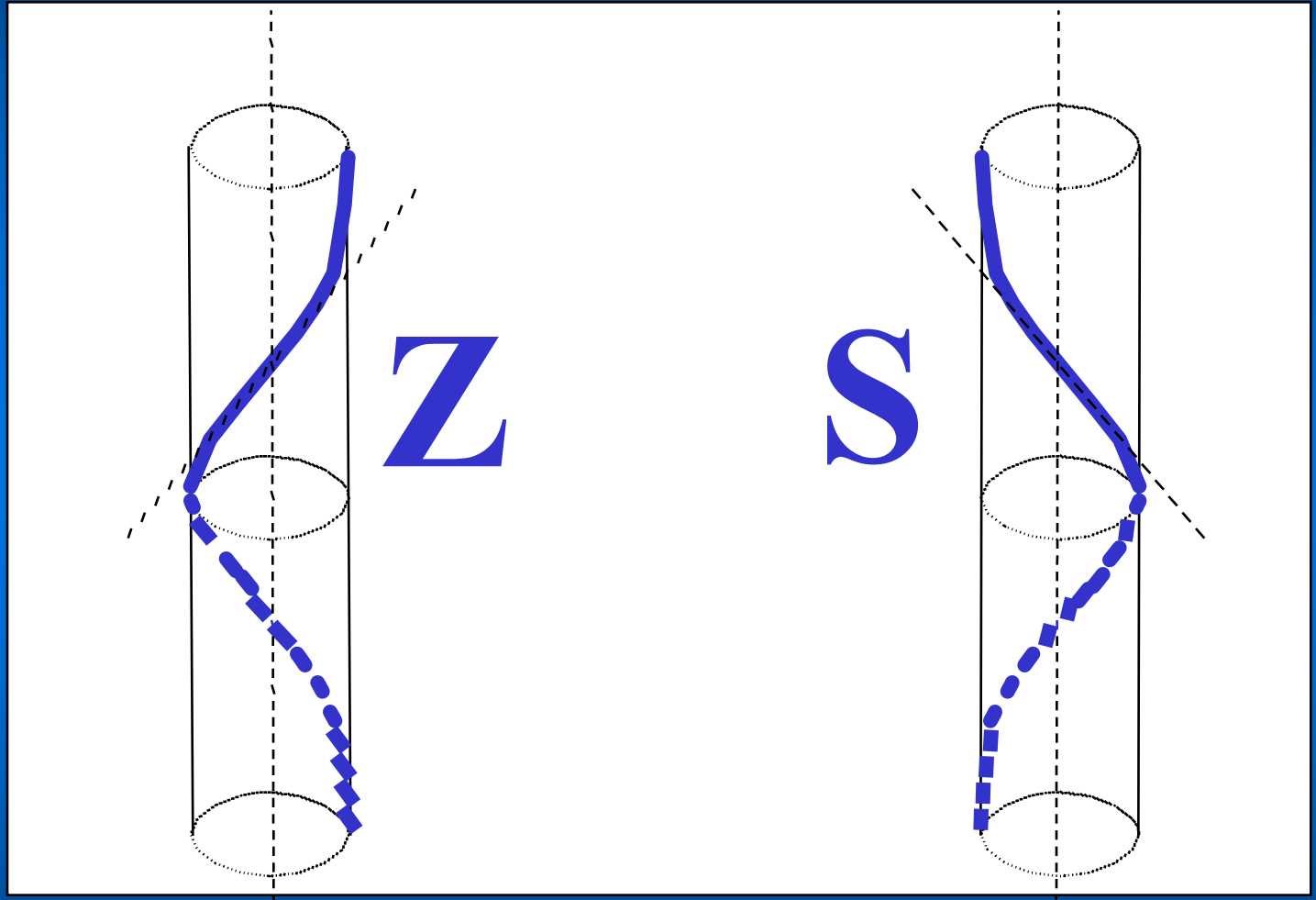
Wool

Yarn Twist

Produced for the CRC for Premium Quality Wool undergraduate program by;
Dr. Peter Auer, The University of New South Wales.



Twist Types



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Twist Level

- numbers of turns per length
 - turns per metre (tpm)
 - turns per centimetre
 - turns per inch (tpi)
- increase twist level
 - assume same Tex
 - increase twist angle
 - slower spindle production
 - more expensive yarns

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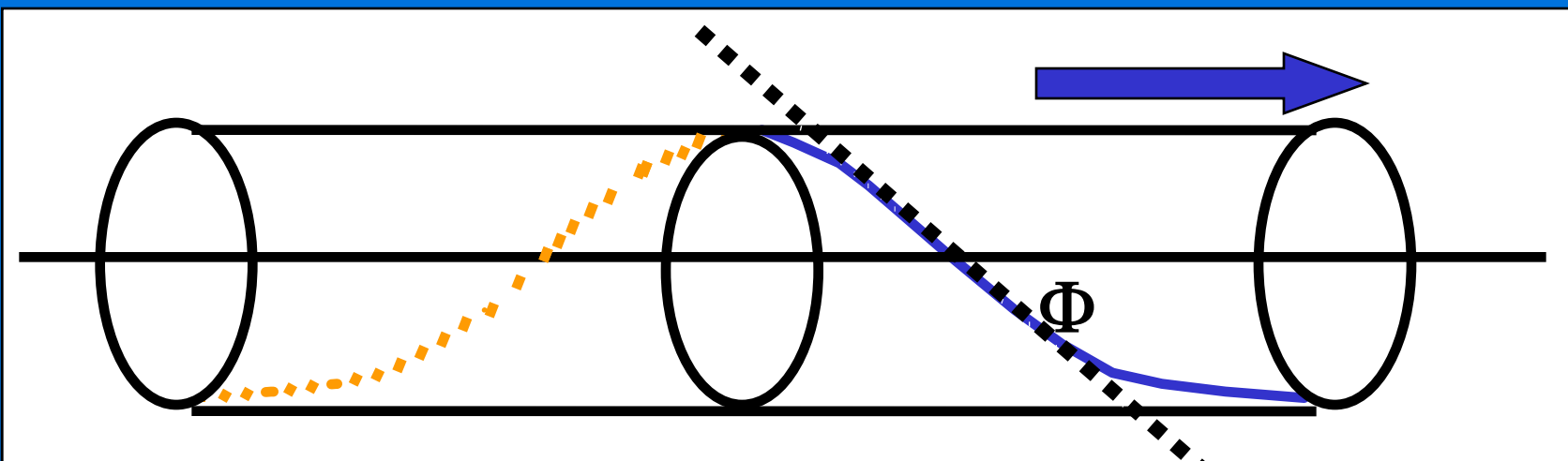
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Twist Angle

- spiral formation after twist
 - twist angle (Φ)
- applied linear force
 - outer fibres pulled to core
- yarn compactness
 - increased yarn strength
 - limited
- fibre coherence

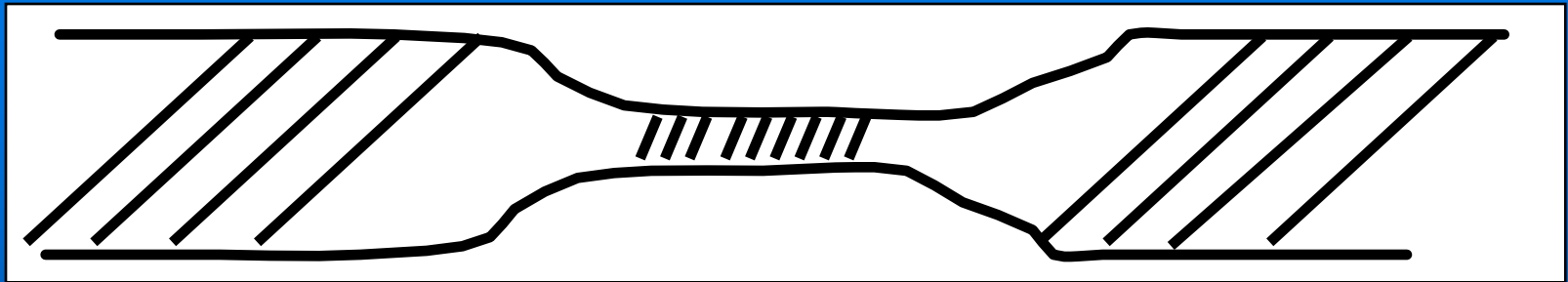


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Twist Levelling

- twist angle (Φ) varies
 - number of fibres in X-section
 - same twist (turns / cm)
- thin: $>$ twist angle
- thick: $<$ twist angle



- apply tension during twist insertion
 - fibres slide in thick places
 - twist levelling effect

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Twist Factor

- Constant (K)

$$\text{tpm} \times \sqrt{\text{Tex}} \propto \text{Twist Factor (K)}$$

- yarn comparison
 - “yarn character”
 - maintain same K
 - lower Tex needs higher tpm
 - lower tpm needs higher Tex
 - higher K
 - harder, tighter yarns
 - cf. softer, looser yarns

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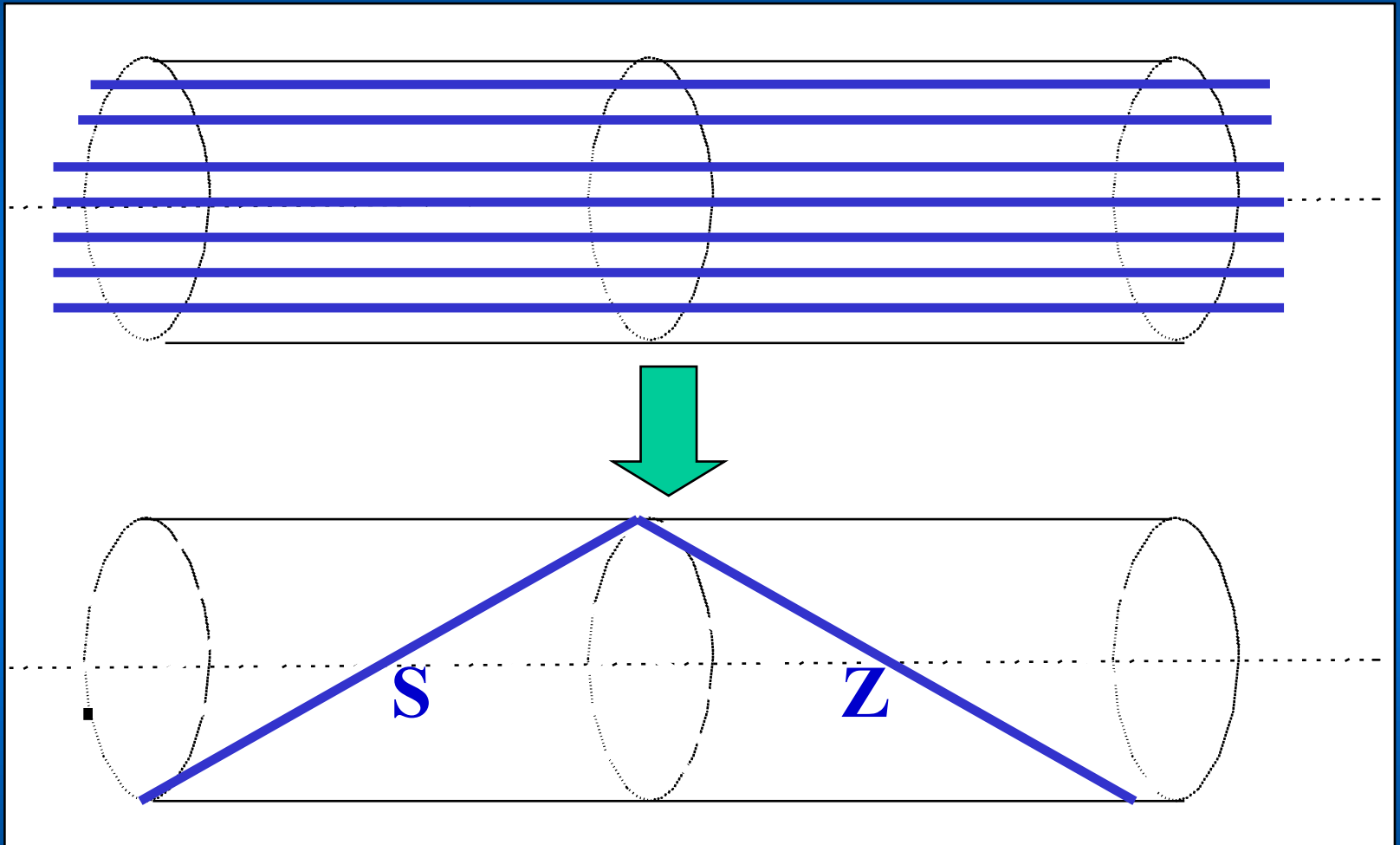
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False Twist



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