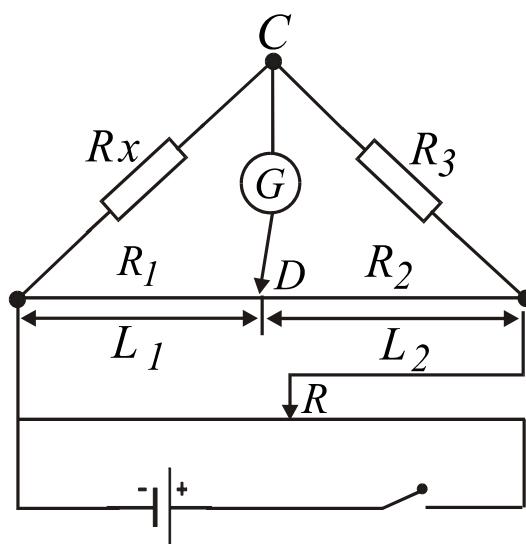


PRÁCTICA 7: El puente de hilo

Nombre y apellidos:

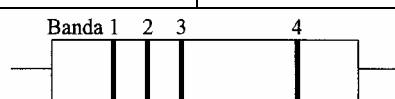
Grupo de prácticas:

Fecha de realización de la práctica:



Código de colores de resistencias comerciales

| Dígito → Color | Dígito → Color |
|----------------|----------------|
| 0 → Negro | 5 → Verde |
| 1 → Marrón | 6 → Azul |
| 2 → Rojo | 7 → Violeta |
| 3 → Naranja | 8 → Gris |
| 4 → Amarillo | 9 → Blanco |



Valor de la resistencia: $R = xy \times 10^z \Omega$

Código de colores:

- la primera banda corresponde al dígito x
- la segunda banda corresponde al dígito y
- la tercera nos da el exponente z
- la cuarta banda indica la tolerancia
 - 5% si es dorada
 - 10% si es plateada

Medida de resistencias:

Código de colores:

| <i>i</i> | Color 1 | Color 2 | Color 3 | Color 4 | R_x^c (Ω) | $\sigma_r(R_x^c)$ % |
|----------|---------|---------|---------|---------|----------------------|---------------------|
| 1 | | | | | \pm | |
| 2 | | | | | \pm | |
| 3 | | | | | \pm | |
| 4 | | | | | \pm | |

Polímetro:

| <i>i</i> | | R_x^p (Ω) | $\sigma_r(R_x^p)$ % |
|----------|--|----------------------|---------------------|
| 1 | | \pm | |
| 2 | | \pm | |
| 3 | | \pm | |
| 4 | | \pm | |

Puente de hilo:

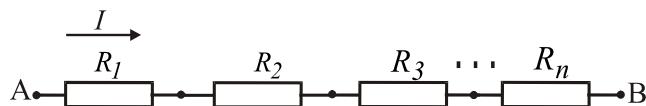
$$R_3 (\Omega)$$

| | L_1 \pm cm | $\sigma_r(L_1)$ % | L_2 \pm cm | $\sigma_r(L_2)$ % | $R_x^h = R_3 \frac{L_1}{L_2}$ (Ω) | $\sigma_r(R_x^h)$ % |
|---|----------------------|----------------------|----------------------|----------------------|--|---------------------|
| 1 | | | | | \pm | |
| 2 | | | | | \pm | |
| 3 | | | | | \pm | |
| 4 | | | | | \pm | |

Cálculo de errores:

Expresión de: $\sigma_r(R_x^h) =$

Asociación de resistencias en serie



$$R_s = \sum_i R_i \quad [1]$$

Código de colores (ecuación [1]):

| <i>i</i> | | $R_s^c(\Omega)$ | $\sigma_r(R_s^c)$ | % |
|----------|--|-----------------|-------------------|---|
| | | | ± | |
| | | | | |

Polímetro (ecuación [1]):

| <i>i</i> | $R_s^p(\Omega)$ | $\sigma_r(R_s^p)$ % |
|----------|-----------------|---------------------|
| | | ± |
| | | |

Puente de hilo (ecuación [1]):

| i | $R_s^h(\Omega)$ | $\sigma_r(R_s^h)$ % |
|-----|-----------------|---------------------|
| | \pm | |

Polímetro, lectura directa:

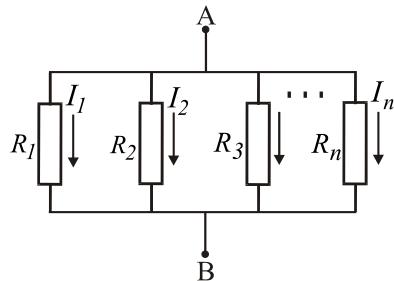
±

Puente de hilo:

$$R_3(\Omega)$$

| L_1 ± cm | $\sigma_r(L_1)$ % | L_2 ± cm | $\sigma_r(L_2)$ % | $R_{xs}^n = R_3 \frac{L_1}{L_2}$ (Ω) | $\sigma_r(R_{xs})$ % |
|------------------|----------------------|------------------|----------------------|--|-------------------------|
| | | | | ± | |

Asociación de resistencias en paralelo



$$\frac{1}{R_p} = \sum_i \frac{1}{R_i} \quad [2]$$

Código de colores (ecuación [2]):

| i | $R_p^c \ (\Omega)$ | $\sigma_r(R_p^c) \ %$ |
|-----|--------------------|-----------------------|
| | | \pm |
| | | |

Polímetro (ecuación [2]):

| i | $R_p^p \ (\Omega)$ | $\sigma_r(R_p^p) \ %$ |
|-----|--------------------|-----------------------|
| | | \pm |
| | | |

Puente de hilo (ecuación [2]):

| i | $R_p^h \ (\Omega)$ | $\sigma_r(R_p^h) \ %$ |
|-----|--------------------|-----------------------|
| | | \pm |
| | | |

$$R_p^{pd} \ (\Omega) \quad \sigma_r(R_p^{pd}) \ %$$

Polímetro, lectura directa:

| | | |
|--|-------|--|
| | \pm | |
|--|-------|--|

Puente de hilo:

$$R_3 \ (\Omega)$$

| \pm | L_1 cm | $\sigma_r(L_1)$ % | \pm | L_2 cm | $\sigma_r(L_2)$ % | $R_p^h = R_3 \frac{L_1}{L_2} \ (\Omega)$ | $\sigma_r(R_p^h) \ %$ |
|-------|-------------|----------------------|-------|-------------|----------------------|--|-----------------------|
| | | | | | | \pm | |