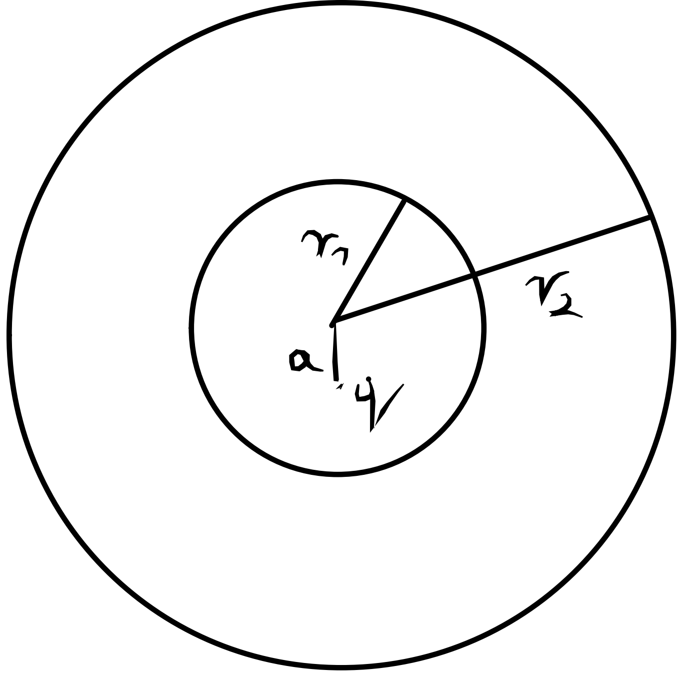

$$\Phi(\bar{r}) = \begin{cases} \frac{q}{4\pi\varepsilon_0}\frac{1}{|\bar{r}-\bar{a}|} + \sum_{l=0}^{\infty} A_l r^l P_l(\cos\theta) & : \quad r < r_1 \\ \sum_l \frac{B_l}{r^{l+1}} P_l(\cos\theta) & : \quad r > r_2 \\ V & : \quad r_1 < r < r_2 \end{cases}$$

W $r = r_2$

$$\Phi(r_2^-) = \Phi(r_2^+)$$

$$V P_0(\cos\theta) = \sum_l \frac{B_l}{r_2^{l+1}} P_l(\cos\theta)$$

$B_l = 0$ dla $l > 0$ $\quad B_0 = r_2 V$

$$\Phi(r > r_2) = V\frac{r_2}{r}$$

W $r = r_1$

$$\Phi(r_1^-) = \Phi(r_1^+)$$

$$\sum_{l=0}^{\infty}\left(\frac{q}{4\pi\varepsilon_0 r_1}\left(\frac{a}{r_1}\right)^l + A_l r_1^l\right) P_l(\cos\theta) = V P_0(\cos\theta)$$

dla $l = 0$

$$\frac{q}{4\pi\varepsilon_0 r_1} + A_0 = V$$

$$A_0 = V - \frac{q}{4\pi\varepsilon_0 r_1}$$

dla $l > 0$

$$\frac{q}{4\pi\varepsilon_0 r_1}\left(\frac{a}{r_1}\right)^l + A_l r_1^l = 0$$

$$A_l = \frac{-q}{4\pi\varepsilon_0 r_1}\left(\frac{a}{r_1^2}\right)^l$$

$$\Phi(r < r_1) = \frac{q}{4\pi\varepsilon_0}\frac{1}{|\bar{r}-\bar{a}|} - \frac{q}{4\pi\varepsilon_0 r_1} + V - \frac{q}{4\pi\varepsilon_0 r_1}\sum_{l=1}^{\infty}\left(\frac{ar}{r_1^2}\right)^l P_l(\cos\theta)$$

$$\Phi(\bar{r}) = \begin{cases} \frac{q}{4\pi\varepsilon_0}\left(V + \frac{1}{|\bar{r}-\bar{a}|} - \frac{1}{r_1}\left(1 + \sum_{l=1}^{\infty}\left(\frac{ar}{r_1^2}\right)^l P_l(\cos\theta)\right)\right) & : \quad r < r_1 \\ V\frac{r_2}{r} & : \quad r > r_2 \\ V & : \quad r_1 < r < r_2 \end{cases}$$

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