METODO DI GAUSS-SEIDEL

al passot 
$$\times$$
 (w+) si interestation i valor  $\times$ ; (w+) se disposable

 $\times$  (w+) =  $\frac{1}{2}$  [bi -  $\frac{1}{2}$  ai  $\times$  (w+) -  $\frac{\pi}{2}$  ai  $\times$  (w)

 $\times$  (w+) =  $\frac{1}{2}$  [bi -  $\frac{1}{2}$  ai  $\times$  (w+) -  $\frac{\pi}{2}$  ai  $\times$  (w)

 $\times$  (w)

 $\times$  (w)

 $\times$  (w)

 $\times$  (w)

 $\times$  (w)

 $\times$  successive over relaxation

we R

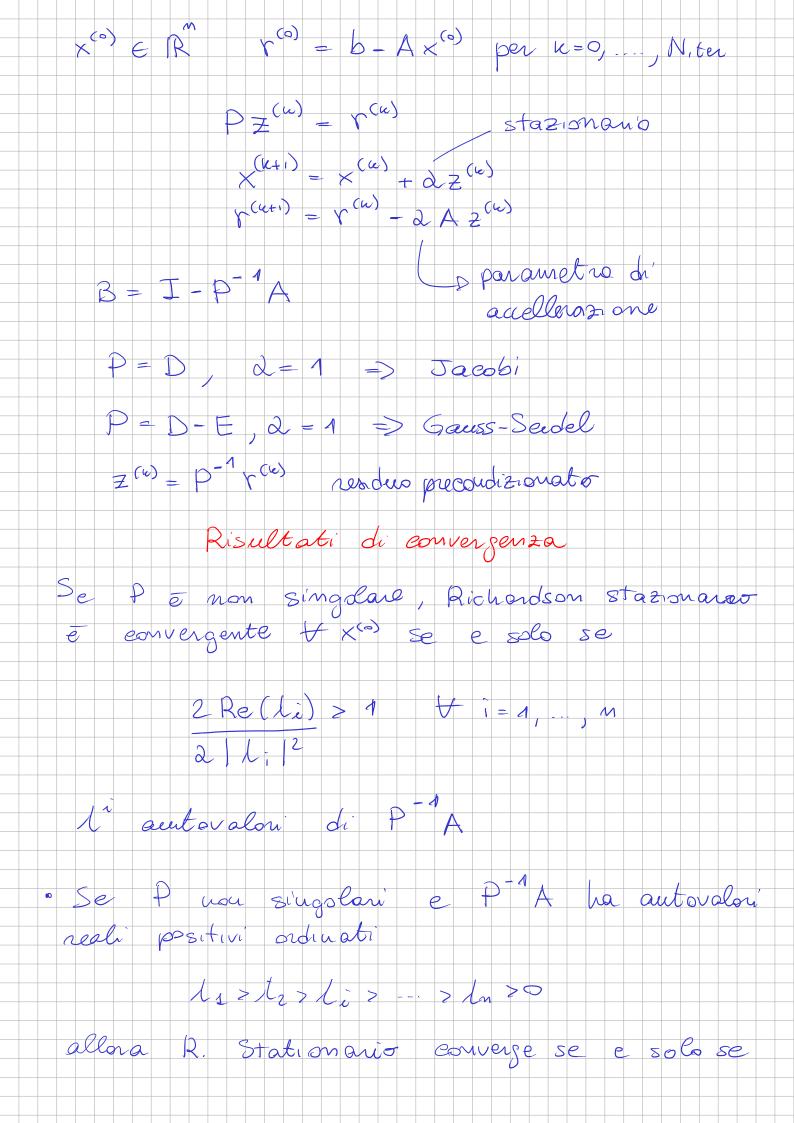
 $\times$  (w+) =  $\frac{\pi}{2}$  (w)  $\times$  (w+) -  $\frac{\pi}{2}$  ai  $\times$  (w) +  $\frac{\pi}{2}$  aii  $\times$  (w)

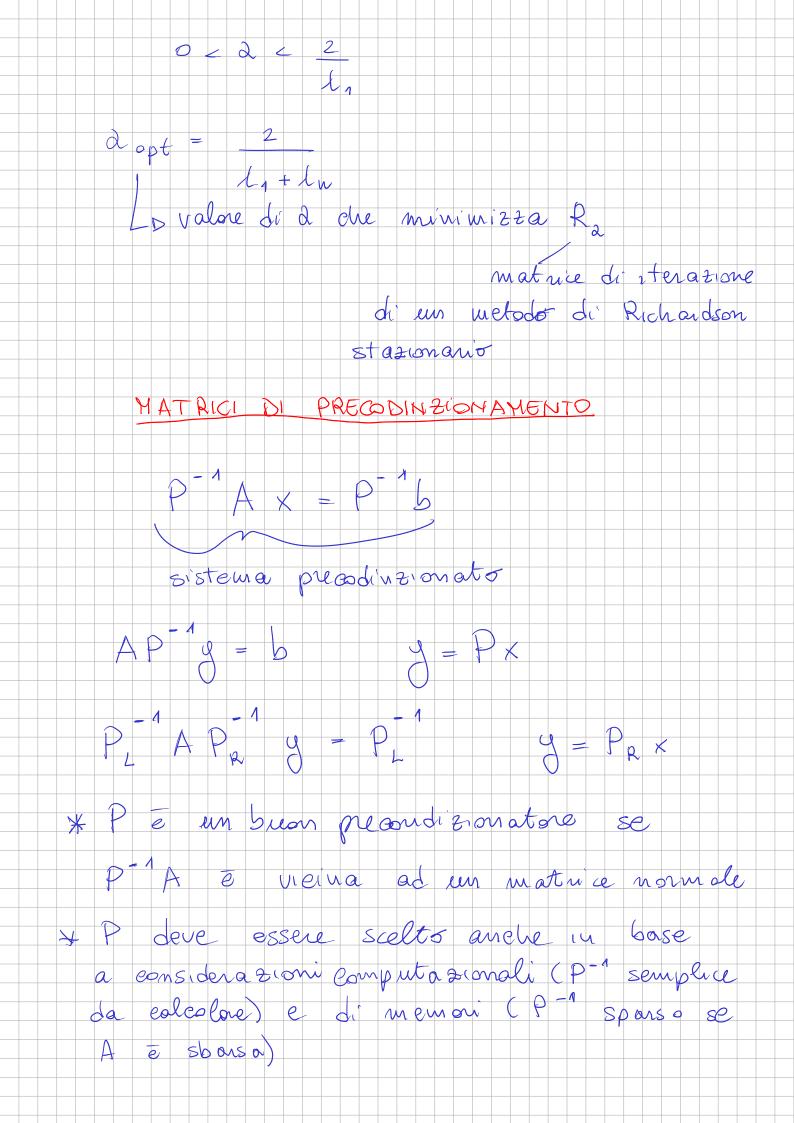
 $\times$  (1 -  $\omega$ )  $\times$  (w)

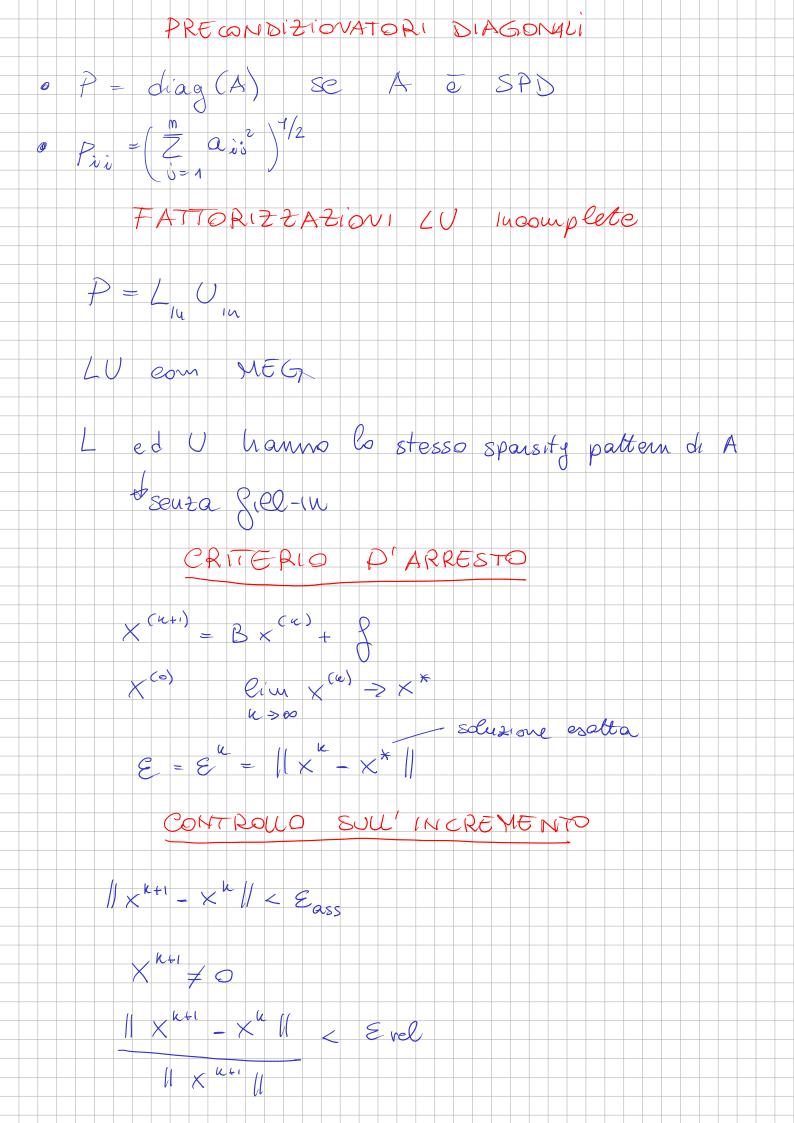
 $\times$  (w)

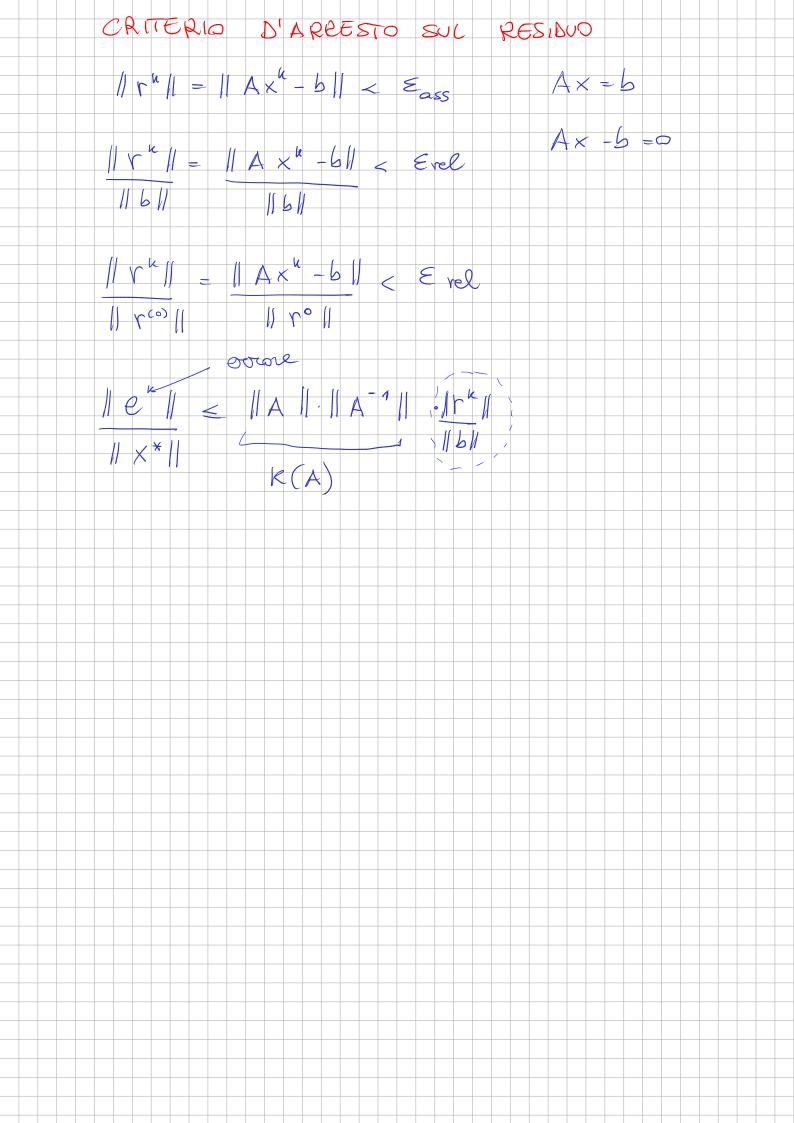
Teorema di convergeu 2 a 1) Se A & a cominanza diagonale Stretta per righe aii > Z | a i;

allora Jacobi Che Gauss Seidel sono eonvergenti 2) Se A é SPD allara GS é convergente 3) Se A e SPD allora JOR converge se 02 w 2 2/9 (D-1A) 4) Se A e SPD allora SOR converge se ocwc2 Hetodi di Richardson  $Y(u) = b - A \times (u)$  $P(x^{(u+i)}-x^{(u)}) + Q_{x}\cdot r^{(u)}$ metodi stazionari du = a = costante non stazionari du = g(u)









## METODI DEL GRADIENTE Gradiente => metodo di Richardson non 8tazion ano · Per matrici simuet viche e SPD $|| \times (\alpha) - \alpha \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^2 = \min || \times (\alpha) - \alpha \times ||^$ $\overline{D}(y) = \frac{1}{2} \sqrt{1} A y - \frac{1}{2} \overline{D}$ Junzione di energia del sistema V Q (9) = 1 (ATHA) 8 - 6 = A 8 - 6 = 0 t p(x)=0=> eq. a résolvere il sistema liveare $\times$ (u+1) = $\times$ (u) + $\otimes$ u $\triangleright$ (u) Die Cenghezza del passo lungo la due zione P(u) e la direzione di discesa $X^{(0)} \in \mathbb{R}^m$ assegnator $Y = b - A \times Y^{(0)}$ per $X = 0, \dots, V$ , ter precodiution above P Z (u) = \( \tau \) A 2 (w) 7 2 (w)

