



Katsayıları Özellikli Bant Matris Olan Denklem Takımlarının Çözümü İçin Bir Algoritma

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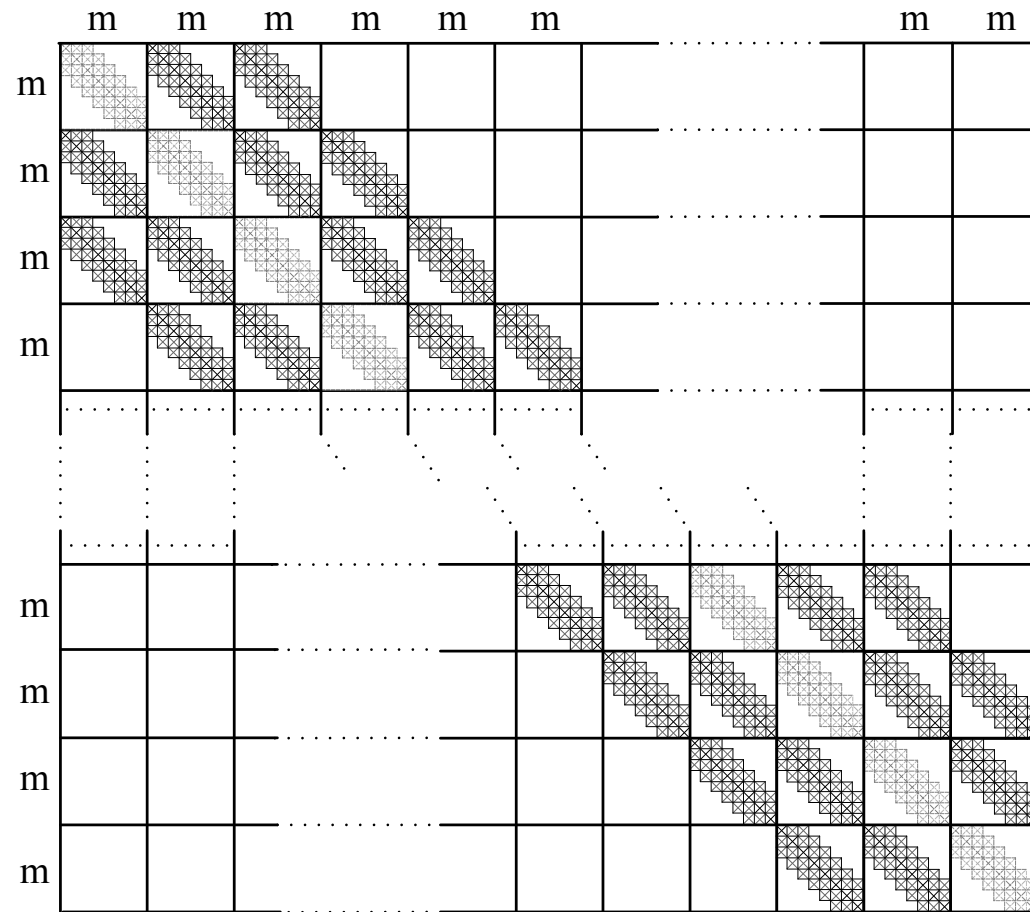


LİNEER DENKLEM TAKIMI

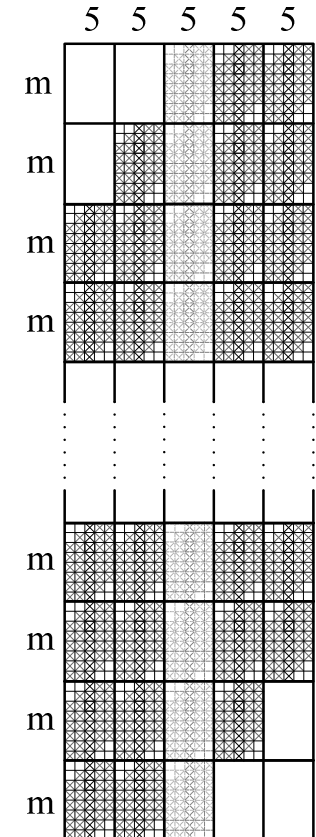
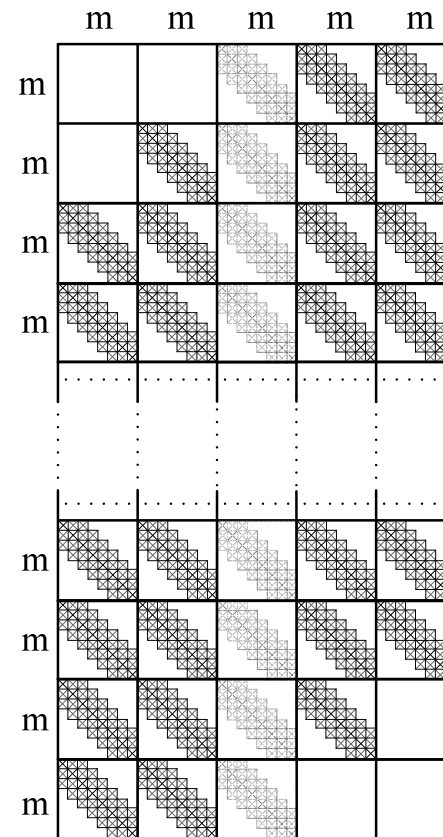
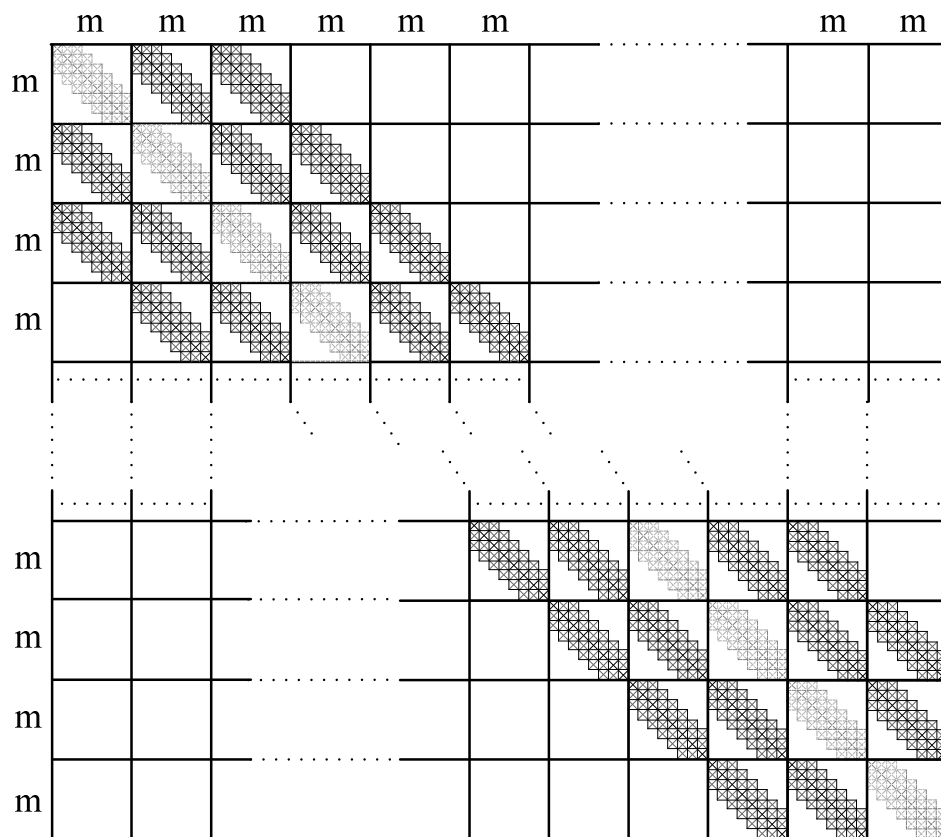
$$\begin{array}{cccccccc} a_{11}x_1 & + & a_{12}x_2 & + & a_{13}x_3 & \cdots & + & a_{1m}x_m & = & b_1 \\ a_{21}x_1 & + & a_{22}x_2 & + & a_{23}x_3 & \cdots & + & a_{2m}x_m & = & b_2 \\ a_{31}x_1 & + & a_{32}x_2 & + & a_{33}x_3 & \cdots & + & a_{3m}x_m & = & b_3 \\ \vdots & & \vdots & & \vdots & \vdots & & \vdots & \vdots & \vdots \\ a_{m1}x_1 & + & a_{m2}x_2 & + & a_{m3}x_3 & \cdots & + & a_{mm}x_m & = & b_m \end{array}$$

$$[A]\{x\} = \{b\}$$

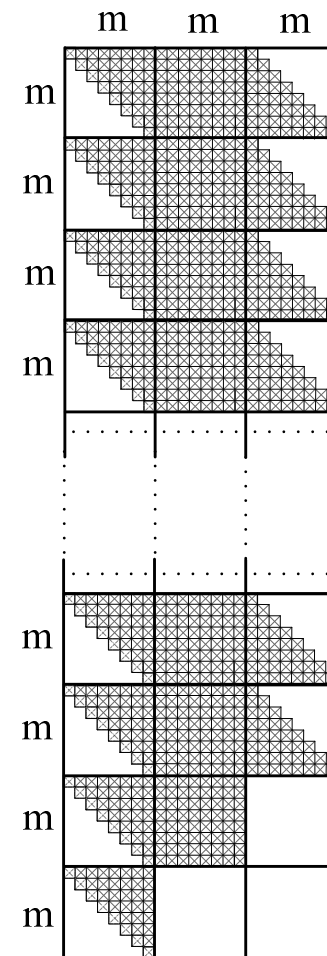
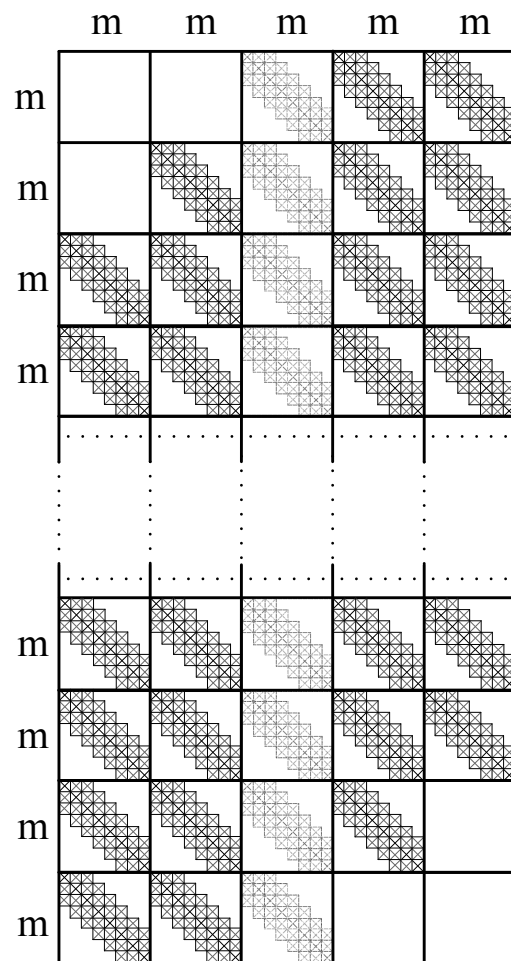
KATSAYILARI ÖZELLİKLI BANT MATRİS



KATSAYILARI ÖZELLİKLİ BANT MATRİS

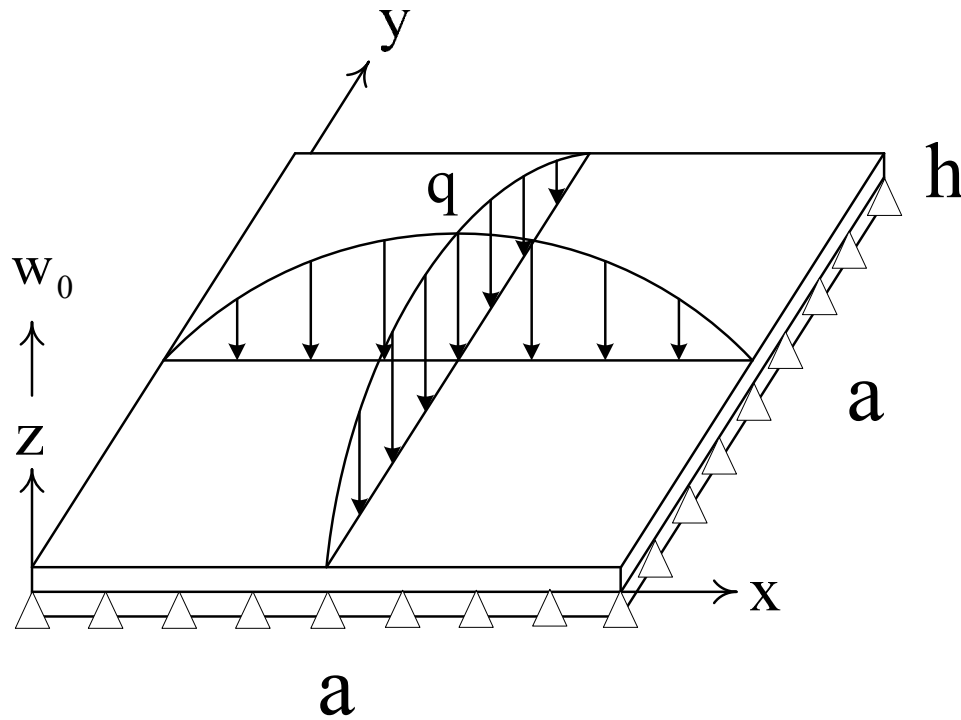


KATSAYILARI ÖZELLİKLI BANT MATRİS



ÖRNEK ÇÖZÜM

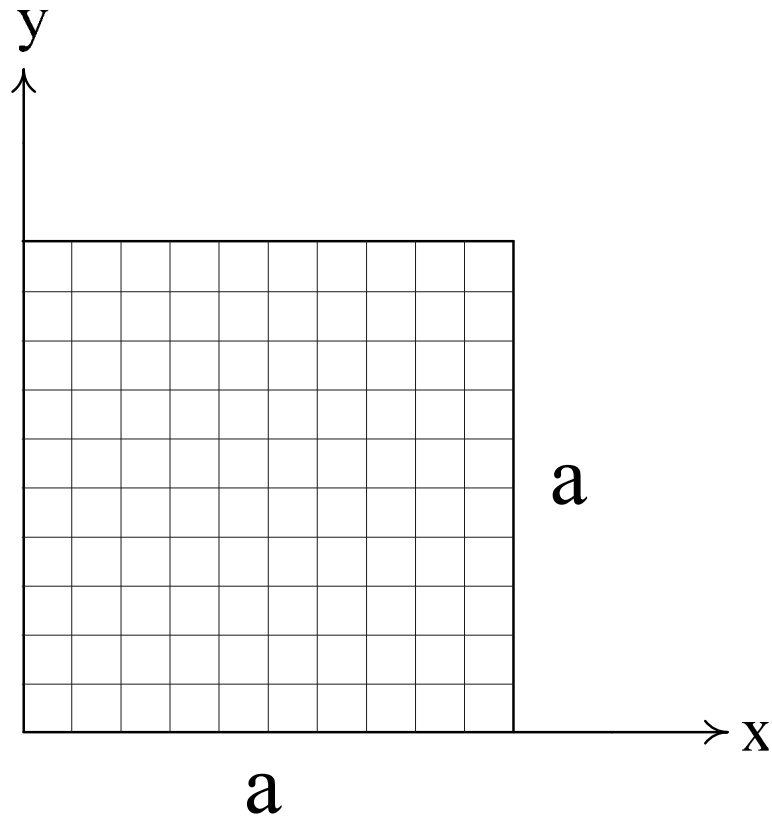
$$\frac{\partial^4 w_0}{\partial x^4} + 2 \frac{\partial^4 w_0}{\partial x^2 \partial y^2} + \frac{\partial^4 w_0}{\partial y^4} = \frac{-q_0}{D} \sin \frac{\pi x}{a} \sin \frac{\pi y}{a}$$



$$q = -q_0 \sin \frac{\pi x}{a} \sin \frac{\pi y}{a}$$

$$D = \frac{Eh^3}{12(1-\nu^2)}$$

ÖRNEK ÇÖZÜM



$$\Delta x = \Delta y = a/2m$$

SONUÇ

m	\bar{W}_0	Bilinmeyen Sayısı	%Hata
10	-0.02814166	100	0.41222
40	-0.02803335	1600	0.02577
80	-0.02802794	6400	0.00649
100	-0.02802729	10000	0.00417
120	-0.02802694	14400	0.00292
160	-0.02802659	25600	0.00166
200	-0.02802643	40000	0.00108
240	-0.02802634	57600	0.00076
320	-0.02802624	102400	0.00042
360	-0.02802621	129600	0.00032

m	\bar{W}_0	Bilinmeyen Sayısı	%Hata
365	-0.02802622	133225	0.00035
366	-0.02802612	133956	0.00000
367	-0.02802620	134689	0.00027
400	-0.02802605	160000	-0.00027
500	-0.02802575	250000	-0.00132
1000	-0.02799519	1000000	-0.11037
1250	-0.02787256	1562500	-0.54795
1500	-0.02762675	2250000	-1.42500
1750	-0.02729706	3062500	-2.60139
2000	-0.02643285	4000000	-5.68496

SONUÇ

m	Hücre sayısı		
	Kare (m^4)	Blok sıkıştırılmış ($5m^3$)	Tam sıkıştırılmış ($25m^2$)
10	10.000	5.000	2.500
100	100.000.000	5.000.000	250.000
500	62.500.000.000	625.000.000	6.250.000
1.000	1.000.000.000.000	5.000.000.000	25.000.000
2.000	16.000.000.000.000	40.000.000.000	100.000.000



TEŞEKKÜRLER...