ERRATUM

In the article, “A Comparative Study of Fiber-Matrix Interactions by Using Micromechanical Models,” by E. Günay, Z. Ece, and M. A. Esi, Vol. 44, No. 4, pp. 349-360, 2008, the following should be noted:

PAGE NO	PRINTED FORM	CORRECTED FORM
349	Depertement	Department
350	$V_f = 0.17$ and $V_m = 0.33$	$v_f = 0.17$ and $v_m = 0.33$
350	Poison	Poisson's
351	elastic	elasticity
352	Fig 3. ...ANSIS	Fig 3. ANSYS
353	$\frac{K}{r_z}$	$\frac{C}{r_z}$
353	(Following the sentence) “Figure 4 presents ...”	(missing sentence): The magnitude of the relative normal stress distribution is $\frac{FE_y}{C_r} = 0.01$, where this factor changes when the Poisson's ratio of matrix is selected in different values in FEA. The maximum values were found as $\frac{FE_x}{r_z} = 2.24$ MPa and $\frac{C_r}{r_z} = 0.283$ MPa, in which the factor decreased to (0.1).
353	Figures 5 and 6	Figure 5
353	Figure 7	Figure 6-a
353	(Following the sentence) “Figures 5 and 6 depict...”	(missing sentence): A parabolic stress distribution is seen within the mid section of the edge. The shear stresses produce a negative response while normal stresses produce positive ones.
353	(Following the sentence) “Figure 7 shows distributions of the shear stresses...”	With $z = 4.72 \cdot 10^{-3}$ mm, at node 13, strain and stresses are $\frac{FE_{yz}}{r_z} = -4.71 \cdot 10^{-4}$, $\frac{FE_y}{r_z} = -1.77$ MPa and $\frac{C_r}{r_z} = -1.05$ MPa. The normal stress values at the same node are $\frac{FE_x}{r_z} = -1.305$ MPa and $\frac{C_r}{r_z} = -1.27$ MPa respectively. But at node 18, with $z = 2.11 \cdot 10^{-3}$ mm, $\frac{FE_{yz}}{r_z} = 1.0 \cdot 10^{-4}$, $\frac{FE_y}{r_z} = 0.377$ MPa and $\frac{C_r}{r_z} = 0.293$ MPa. The normal stress distribution at the same node is found as $\frac{FE_x}{r_z} = 1.357$ MPa and $\frac{C_r}{r_z} = 0.0402$ MPa. The approximate relative normalized percentage errors for the normal stresses between nodes 13 and 18 are found as $\text{error} = 3.0\%$, $\text{error} = 97\%$ respectively. The shear stress calculations give the percentage errors as $\text{error} = 40.8\%$ and $\text{error} = 22.2\%$ at the same nodal points. As a result of error calculations, the values of the percentage relative errors are determined as 9 for normal stresses and 2 for shear stresses in terms of FEA/Cox ratio. In addition, $\frac{FE_{yz}}{r_z}$ ($\frac{C_r}{r_z}$) versus z curves in both FEA and Cox show hyperbolic functional behaviors.
353	Fig. 8	Figure 6-b
353	(Following the sentence) “As is seen, there is a significant increase ...”	(missing sentence) The high stress localizations in Cox's formulation were not as large as those in the FEA solution.
353	Preceding the sentence) “A comparison ...”	(missing sentence) The normal stress distribution follows a parabolic curve on the lower sectional path.
353	(Following the sentence) “A comparison ...”	(missing sentence) The ratio of the normal stresses for the two methods give the percentage error as $\frac{FE_y}{r_z} / \frac{C_{ox}}{r_z} = 70\%$.
353	Fig. 9	Fig. 7
353	Fig. 10	Fig. 8

353	In place of the following sentence :” The distributions of shear stresses on nodes 12-13 according to the Cox and FEA models are shown in Fig. 8.”	Replace with: Shear stresses were compared between the nodes 12-19 and the values are shown in Fig. 8. The shear stresses at node 19 are found as $\tau_{yz}^{FE} = -50.6$ MPa and $\tau_{yz}^C = -41.2$ MPa, while at node 12, they are found as $\tau_{yz}^{FE} = 29.3$ MPa and $\tau_{yz}^C = 16.5$ MPa. They are approximately equal to each other.
353	Figures 11 and 12	Figures 9 and 10
354	Fig. 6. Distributions....	After “according” add: to Cox (○) and ANSYS (●).
355	Fig 11. frjntal	frontal
356	Figure 13	Figure 11
356	Figure 14 and 15	Figure 12 and 13
356	as is seen in Figs. 13-15	 as is seen in Figs. 11-13
356	Figure 16	Figure 14
356	Figures 17 and 18	Figure 15
357	Figure 3-18	Figure 3-15
358	“Content of the 4.Conclusions” is replaced with the following text	<p>The whole results of applications from analytical, FEA, and the obtained conclusions with comparisons are summarized. The Cox’s normal stress and shear stress equations were reexamined with Eq. (1) and Eq. (2). The interface stress values obtained from different FEA geometrical models were used in these expressions as interface elastic stresses and strains by ANSYS. In order to clarify and compare the respective interactions, all graphs were drawn according to the data obtained by using the FIBER interface program. The purpose of these comparisons can give the researchers a general view for the reformulation of the interface stress distributions by the consideration of numerical experimental results. It is shown that in order to explain the normal/shear coupling effects completely in an elastic region, a new formulation is necessary and it can be obtained in a future study by trying to obtain the equations of new polynomials from the plotted graphical curves.</p> <p>The selected composite material is a type of polymer thermoplastics (PMC), discontinuous particulate (DRX); however, the same procedure can be applied to different materials. In short, the following conclusions are given:</p> <ol style="list-style-type: none"> 1) shear stress distributions are the same in Cox’s and FEA on the fiber-matrix interface surface which act together (Fig. 3), 2) normal stress distributions are different according to the results of Cox’s and FEA models (Fig. 4), 3) the mathematical model generated according to the band pressure provides the most suitable stress distributions on fibers for normal and shear stress distributions whenever the origin of the coordinate system is attached to the tip of the fiber (Fig. 17-Fig. 18) (Barton, Ithaca [28]). <p>According to these results, we can say that when stress distributions are determined for each fiber-matrix unit cell, it will be possible to determine stress distribution map by combining the “n” different unit cells data all together. By this way, ply failure, delamination, or gross failure of typical segments which have critical stress localizations detected of fiber composite will be solved.</p> <p>The Cox formulation is the base model and various studies have been made in order to improve the basic formulation by various authors. The stress distribution solution results between the fiber and matrix are affected directly by the numerical and analytically based formulations. The Poisson’s ratio of the elasticity constant exists in elasticity and numerical solutions, so that re-modification of Cox’s analytical formulas by including the Poisson’s ratio and application of the possibly variable Poisson’s ratios, both for relatively different fiber and matrix material types, can be considered. Cox’s formula can also be modified for the normal stress distribution.</p> <p>Future studies should be performed in order to investigate the effectiveness of both numerical and analytical method solutions for different types of fiber composite materials.</p>