

TABLE I: Geometrical form of the proposed bh-dh symmetric channel matrix

Example 1 at $p \in \{0, 1\}$ and $\eta_h = 0.35$ when $TG > AC$	
$\mathbf{P}_d = \begin{pmatrix} 0.65 & 0.35 \\ 0.35 & 0.65 \end{pmatrix}_{p=0}$	$\mathbf{P}_d = \begin{pmatrix} -0.35 & 1.35 \\ 1.35 & -0.35 \end{pmatrix}_{p=1}$
Example 2 at $p \in \{0, 1\}$ and $\eta_o = -0.28$ when $TG < AC$	
$\mathbf{P}_d = \begin{pmatrix} 1.28 & -0.28 \\ -0.28 & 1.28 \end{pmatrix}_{p=0}$	$\mathbf{P}_d = \begin{pmatrix} 0.28 & 0.72 \\ 0.72 & 0.28 \end{pmatrix}_{p=1}$
Example 3 at $p \in \{0, 1\}$ and $\eta_f = 0$ when $TG = AC$	
$\mathbf{P}_s = \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}_{p=0}$	$\mathbf{P}_s = \begin{pmatrix} 0 & 1 \\ 1 & 0 \end{pmatrix}_{p=1}$

TABLE II: The maximum expandable entropy and capacity bound of the proposed bh-dhD channel model

p	$H_s(p)$	C_s	η_{rh}	η_{lh}	$p_{d,rh}$	$p_{d,lh}$	$H_d(p_{d,rh})$	$H_d(p_{d,lh})$	$C_{d,rh}$	$C_{d,lh}$
0.00	0.00	1.00	1.00	-1.00	1.00	-1.00	0.00	-2.00	1.00	3.00
0.50	1.00	0.00			1.50	-0.50	-1.37	-1.37	2.37	2.37
1.00	0.00	1.00			2.00	0.00	-2.00	0.00	3.00	1.00

TABLE III: The entropy and capacity of the proposed bh-dh channel based on Human^{18,22} and Octopus^{18,22} DNA case

p	η_h	η_o	$p_{d,h}$	$p_{d,o}$	$H_d(p_{d,h})$	$H_d(p_{d,o})$	$C_{d,h}$	$C_{d,o}$
0.00	0.35	-0.28	0.35	-0.28	0.93	-0.97	0.0659	1.97
0.50			0.85	0.22	0.61	0.76	0.39	0.24
1.00			1.35	0.72	-1.11	0.85	2.11	0.15