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- '+b\$2(J!6!) <>(H02&>\$!?'&(&H?'1; \$*!) +?>\$!+,!(. \$!6R\$(&!%+'\$!,<*2(1+*!&*?!U&^2+(+N121(/! *!6>g. \$1) \$'h0!
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] +>\$J! - '1*21%&>!4* ; \$0(10&(+ '!
- '+b\$2(J!D+!R<1>?!&!0) &>>!2+) %<(\$!2><0(\$!,+!'!?\$; \$>+%1*0!) <>(H02&>\$!?'&(&H?'1; \$*!) +?>\$0!(+!<*?\$'0(&*?!
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KIL 6) \$'12&*!- . /012&>!5+21\$(/!a"73888!KA8A8LQ!
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- '+b\$2(J!D+! . +0!(. \$!U+*, \$'\$*2\$,+!'! : *?\$'0'&?<&(\$! S +) \$*!1*!- . /0120!1*!A8A8!&(! : *1; \$'01(/!+,!5+<(.!
=>+'1?&Q!
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+ #80'%&'() /*

"Q Y&*0\$*Hd '&R+C0[!163!; &*!5+\$0(!43!d<g) &*!] 3!d\$*02. !D3!900% : * ; 3!&*?! =& . >[\$!U3 D'&*0%+ '(!' +2\$00\$0!
&00+21&(\$?!C1(. !>/0+0+) &!2. >+'1?&!*?!%'+(+*!&22<) <>&(1+*3!(+!R\$!0<R) 1((?\$?Q!

AQ :) &'!6!] 3!E1+? / *+!Z3!900% : * ; 3!V<0210>1+!Y3!&*?!# \$) <' +!63!# +C*!5 / *?' +) \$H&, \$2(\$?! . <) &*!
2+ '(12&!&0(' +2/(\$0!\$N. 1R1(!) %&1'\$?4- H?&\$%\$*\$(U&^2+!010* &1*0!&*?!R1+\$* '\$O\$(1203!(+!R\$!0<R) 1((?\$?Q!

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&&(. +0\$* \$010!+, !6>g. \$1) \$'h0! ?10\$&0\$!(. ' +<0. !2+) %<(&(1+* &!) +?>\$! *03!0<R) 1((?\$?Q!

7Q 6 ?\$+ /!D3!5 . &. !5!43!&*?! : >&. !d0!5 /0(\$) &(12!&* &/010!+, !R1+>+012&>!%' +2\$00\$0!' \$; &>0!O\$*\$!2+H
\$N%' \$001+*!) +?<0\$0?'1; 1*0!%&(. C&/! ?/0' \$0<&(1+*!1*!6>g. \$1) \$'h0! ?10\$&0\$!601*0!&*?! #10\$&0\$!KA8A@LQ!

GQ =&b\$) 10! *!Y!63!d+*g&>\$g!d3!] +0\$*R\$'0!5!63! : >&. !d3!] \$?>\$'!d3!E&(1, !1 i 3!Z + ' +0!B!d3!B>! ^ &j &!4Q!
Z&0*\$!(12!] \$0+* &*2\$H0<1?&?!U&*2\$'!D. \$'&% /!] &?1+) 120!&*?!Z&2. 1*\$!E\$&' *1*0!Z +?>\$0!,+!'] \$0%+*0\$!
- '\$?12(1+*3!D+) +O'&% . /!KA8A@L!"8KML!"@FMH"@7@Q!

IQ -&00>12[!53! : >&. !d3!&*?! ` \$**\$R\$'O\$'!UQ!V1?1'\$2(1+* &?! ?/0' \$0<&(1+*!+, !10 / *% (12!0<(&) &(\$!010* &>1*0!
&, (\$!' (&*01\$*(!) \$(&R+>12!, &!<' \$3!\$E1, \$!KA8A@LQ!

9Q : >&. !d3! ^ +0/ '\$; &!B3!&*?!5 / \$?&!] 3 - 1\$g+ "12. &**\$>!O&(\$!'!0<RH2+*?<2(&*2\$!>\$; \$>0!C1(. !%' \$00<' \$H!&*?!
; +>(&0\$H?&\$%\$*?\$(1+22<%&*2!\$03!Y+<' * &+!, !V1+>+012&>!U. \$) 10(' /!KA8A@L!F88K@L!"8I"7GQ!

MQ 5 . &. !5!43! - &' [\$'!43!900% : ! ; 3 &*?!# \$) <' +!63!6 @8!&*?!6 @A!+>10+) \$'0!,+ ') !(&*01\$*(!&*?!%' \$'010(\$*(!
%+ '\$0! ?1, , \$'\$*(!1) \$!\$; +><(1+*0!&*?!(+N121(1\$03!5<R) 1((?\$?#X4!
(%0JTT?+1Q+ 'OT"8Q" "8"TA8AAQ8@QAMQ@M8"8"Q!

"8Q B; \$'&\$'(0! i 3!D. &%&>/1&! - 3!#<' /!53! - &%\$! ^ 3!B1(\$) &**!53!] +<00&!B3!900% : * ; 3!&*?!] +0\$!UQ!] 3!4*C&'?!
+%\$' &(1+*!+, !^ VU\$"!<%+*!R'1\$, !2. \$) 12&>!02. \$) 1&!%' +) +(\$0!&0(' +2/ (12! ^ &+!>+&*1*0!&*?!>+00!+, !6D- !1*!

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.+) \$+0(&010!R\$(C\$\$*!2+'(12&>!&*?! .1%%+2&) %&>!&0(' +2/(\$0!&*?!1(0!1) %&2(!+*!R1+\$*\$'O\$(1203!

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AMQ -\$!\$g!U3!Z1(!D3!`&0\$2[\$!=3!Z\$10>!d3!`+/\$!S3!Z<02.+>!Z3!&*?!900%:* ; Q!Z\$2.&*10)!+,!,1R'!>!&*?!
0+><R>\$!+>10+) \$'!,+') &(1+*! !*&) />+1?!R\$(&!&*?!.\$*!\$00!C.l(\$!>/0+g/) \$!%' +(\$1*03!Y+<'*&>+ ,!- ./012&!
U.\$) 10(' /!V3!KA8"ML!"AFKAIL!7GI9H7G9M0

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GAQ

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Z+?>1*03!D.\$!X%\$*!^\$<'>+O/!Y+<'&>3!4*(\$'*&(1+*&!Y+<'&>+!,!U+) %<(&(1+*&!Z\$(. +?03!V1+,&R'12&(1+*3!
\$E1,\$3!4*(\$'*&(1+*&!Y+<'&>+!,!5('<2(<'&!&*?!U+) %<(&(1+*&!V1+>+O/3!Y+<'&>+!,!] &)*!5%\$2('+02+%/3!
Y+<'&>+!,!V1+% .+(+*1203!^\$<'&>+!^\$(C+'[03!(.\$!X%\$*!^\$<'>+O/!Y+<'&>3!^\$<'&>!] \$0\$*\$'&(1+*!
] \$0\$&'2.q!

5\$*&(+!&(! : 5=!&2<>(/!5\$*&(\$3!8MTA8AAH!%'\$0\$*(!

Z\$) R\$'+,!: 5=!- . /0!20!U+)) 1(((\$\$,+'!#\$\$&'() \$*(! S \$R01(\$!#\$\$; \$>+%) \$*(3!8MTA8AAH%'\$0\$*(!

Z\$) R\$'+,!: 5=!- . /0!20!&2<>(/!6?;10+'/!U+)) 1(((\$3!89TA8"9H87TA8A"!&*?!8MTA8AFH%'\$0\$*(!

U.&1'3!4*,+') &(1+*3!U+) %<(1*03!&*?!U+)) <*12&(1+*!U+'\$+!,!: 5=!-&*?\$) 12!] \$0%+*0\$!] \$0\$&'2.!^\$(C+'[3!
A8A8!\!A8A"!



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IQ 4*(' + ? < 2(1+*!(+!U+) %<(&(1+*&>!- . /0120!K- . #!>\$; \$>!U+<'0\$!f!- ` c!7"7@UL3!(&<0. (!0\$; \$*!(1) \$0!0! *2\$! A8" FQ!

9Q 6 ? ; &*2\$?!U+) %<(&(1+*&>!- . /0120!K- . #!>\$; \$>!U+<'0\$!f!- ` c!7"7GUL3!(&<0. (!,1; \$!(1) \$0!0! *2\$!A8"@Q!!

MQ Z & (. \$) & (12 & ! Z \$ (. + ? 0 ! * ! - . / 0 1 2 0 ! K : * ? \$ ' O ' & ? < & (\$! > \$; \$ > ! U + < ' 0 \$! f ! - ` c ! F " " F L 3 ! (& < 0 . (! 0 1 N ! (1) \$ 0 ! 0 ! * 2 \$! A 8 " G Q !

"8Q d \$ * \$ ' & ! - . / 0 1 2 0 ! 4 ! K C r 6 > O \$ R ' & L K : * ? \$ ' O ' & ? < & (\$! > \$; \$ > ! U + < ' 0 \$! f ! - ` o ! A 8 7 F L 3 ! 5 <)) \$ ' ! A 8 " @ Q !

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X* > ! * \$! U + < ' 0 \$ 0 ! # \$; \$ > + % \$? ! & * ? ! D & < 0 . (!

"A Q U +) % < (& (1 + * & ! - . / 0 1 2 0 ! K : * ? \$ ' O ' & ? < & (\$! > \$; \$ > ! U + < ' 0 \$! f ! - ` c ! @ " 7 " U L 3 ! ? \$; \$ > + % \$? ! * 1 5 <)) \$ ' ! A 8 " G 3 ! (& < 0 . (! * ! = & > ! A 8 " G Q !

"F Q X * > ! * \$! U + < ' 0 \$! + * ! 4 * (' + ? < 2 (1 + * ! (+ ! U +) % < (& (1 + * & ! - . / 0 1 2 0 ! K - . # ! > \$; \$ > ! U + < ' 0 \$! f ! - ` c ! 7 " 7 @ U L 3 ! ? \$; \$ > + % \$? ! * 1 5 <)) \$ ' ! A 8 " G 3 ! (& < 0 . (! * ! = & > ! A 8 " G Q !

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IQ WIN!*O!`&*3!Z\$?12&>!- ./0120!ZQ5Q!K=&>!A8" I!\!5%'1*O!A8A8L!

9Q U.'10(+%. \$!D12.&2\$[3!Z\$?12&>!- ./0120!- . #!K5<))\$!A8"7!\!&>!A8"ML!

MQ ^1[>&0!`mR\$>3!- . #3!-+0(?+2(+&!>] \$0\$&'2. \$!KZ&'!A8"7!H!5<))\$!A8"GL!

"8Q -&('12[!D+O>l&3!- ./0120!- . #!K=&>!A8"F!\!5%'1*O!A8"9L!

""Q Z<.&))&?!5 .&.1jH :>H`&00&*3!Z\$?12&>!- ./0120!- . #!K5%'1*O!A8"G!\!5%'1*O!A8"9L!

"AQ 5&\$?16 .) &?!Z\$?12&>!- ./0120!- . #!K5%'1*O!A8"G!\!5%'1*O!A8"ML!

"FQ Z12.&\$!&0&*+3!- ./0120!ZQ5Q!K5%'1*O!A8"@!\!5%'1*O!A8"9L!

"@Q ='&*2102+!5&* (+03!- ./0120!ZQ5Q!K=&>!A8"7!\!5%'1*O!A8"9L!

"7Q i &'0!_>? [&) %3!Z5!4*(\$*!, '+) ! : *1; \$'0!(/!+, !DC\$*(\$!^ \$(. \$'>&*?0!KZ& /!A8"!H!^+; !A8A"LQ!

: *? \$'O'&?<&(\$!5(<? \$*(0!

"Q 5(\$,&*!=\$!\$'3!- ./0120! : *? \$'O'&?<&(\$!K5<))\$!A8AA!\!- '\$0\$*(L!

AQ B) l> /!B!_&*! S 1\$>\$3!- ./0120! : *? \$'O'&?<&(\$! : *1; \$'0!(/!+, !D&) %&!K5<))\$!A8A@\!- '\$0\$*(L!

FQ # \$; 1*!d &1*\$'3!- ./0120! : *? \$'O'&?<&(\$!K5%'1*O!A8AF!\!&>!A8AFL!

@Q B'12!` + *,\$2[3!- ./0120! : *? \$'O'&?<&(\$!K5%'1*O!A8AF!\!&>!A8AFL!

7Q U&'>+!*\$! S &'?3!- ./0120!] B : !0(<? \$*(!, '+) !D. \$!U+>>\$0\$!+, ! S ++0(\$'3!X`!K5<))\$!A8AAL!

GQ D/>\$'!` <>>3!- ./0120! : *? \$'O'&?<&(\$!K5%'1*O!A8A"!H!5%'1*O!A8AAL!

IQ Anthony Gifford3!- ./0120! : *? \$'O'&?<&(\$!K=&>!A8A"!H!5%'1*O!A8AAL!

9Q Zenzele Thomas3!- ./0120! : *? \$'O'&?<&(\$!K=&>!A8A"!H!5%'1*O!A8AAL!

MQ U.&0\$!] < , 3!- ./0120! : *? \$'O'&?<&(\$!K5%'1*O!A8A8!H!&>!A8AAL!

"8Q 6>\$N!Y! 60+0(+3!- ./0120! : *? \$'O'&?<&(\$!K=&>!A8A8!H!&>!A8AAL!

""Q B(.&*!` !=>\$) 1*03!- ./0120!] B : !0(<? \$*(!, '+) !Z1?>?>\$R< /!U+>>\$0\$3!_D!K5<))\$!A8A"L!

"AQ S l>l&) !-&*(\$3!- ./0120! : *? \$'O'&?<&(\$!K5%'1*O!A8"M!H!5%'1*O!A8A8L!

"FQ] +0&'1+!` \$'&*?>\$g3! : *? \$'O'&?<&(\$! - ./0120!] B : !0(<? \$*(!, '+) !5+<(. C\$0(\$! : *1; \$'0!(/3!D s !K5<))\$!A8"ML!

"@Q U+>1*!D'\$; +!` <*(>\$/3!- ./0120! : *? \$'O'&?<&(\$!K5<))\$!A8"M!H!5%'1*O!A8A8L!

"7Q Y+ . *!c . +<3!- ./0120! : *? \$'O'&?<&(\$!K5%'1*O!A8"M!H!&>!A8"ML!

"GQ d '&2\$!E+ / ?3!U\$>>&'!&*?!Z +>\$2<&'!V1+>+0 /! : *? \$'O'&?<&(\$!K5%'1*O!A8"9!\!5%'1*O!A8"ML!

"IQ i &f [(d) 5.92cm/TT9!Tf(!) TjETQq0.24000.2412589.92cm.24125892589.92c.23'059 s c q ITf(!) TjETQq0.24000.24125

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AAQ 5&*1) !] & .) &*3!U. \$) 12&>!B*01*\$ \$'1*0! : *?'\$'O'&?<&(\$!K5%'1*0!A8" I!\!5%'1*0!A8"9L!
 AFQ]+R\$'(15%'&O<\$3!- . /0120! : *?'\$'O'&?<&(\$!K=&>!A8" I!\!5%'1*0!A8"9L!
 A@Q 6*(. +*! /i !U>\$&'3! : *?'\$'O'&?<&(\$!- . /0120!] B : !0(<?'\$*(!, '+) !i 1*0! : *1;\$'01(/3!D^!K5<)) \$'!A8" IL!
 A7Q B)) &!5(\$% .&*3! ^ 10. !52. ++>!5(<?'\$*(!K87TA8" I!\!8MTA8" IL!
 AGQ V'&*(+*! ` <., 0(<(>\$'3!- . /0120! : *?'\$'O'&?<&(\$!K=&>!A8"@!\!&>!A8"GL!
 AIQ B ;&*!E1(<(\$3!- . /0120! : *?'\$'O'&?<&(\$!K5%'1*0!A8"G!\!S 1*(\$'!A8"GL!
 A9Q D/>\$'!4+'!gg+3!- . /0120! : *?'\$'O'&?<&(\$!K5<)) \$'!A8"7!\!&>!A8"GL!
 AMQ U+<(+*!Y+. *0+*3! : *?'\$'O'&?<&(\$!- . /0120!K=&>!A8"7H!5<)) \$'!A8"GL!
 F8Q 5&) <\$!Z+*(0+) \$' /3! : *?'\$'O'&?<&(\$!- . /0120!] B : !0(<?'\$*(!, '+) !^ \$C!Z \$N12+!D\$2. !K5<)) \$'!A8"7L!
 F"Q D. &(2. \$!'Z+003! : *?'\$'O'&?<&(\$!- . /0120!K5<)) \$'!A8"7L!
 FAQ #&*!\$>!V+*!i>>&3! : *?'\$'O'&?<&(\$!- . /0120!K=&>!A8"7L!
 FFQ]+R\$'(!E+0&*3! : *?'\$'O'&?<&(\$!- . /0120!K=&>!A8"FH!5%'1*0!A8"7L!
 F@Q U+'\$'!/V&(. <'0(3! : *?'\$'O'&?<&(\$!- . /0120!K=&>!A8"FH!5<)) \$'!A8"@L!
 F7Q U&(. &'1*\$!5. 1%03! : *?'\$'O'&?<&(\$!- . /0120!] B : !0(<?'\$*(!, '+) !X. 1+!5(&(\$! : *1;\$'01(/!K5<)) \$'!A8"7L!
 FGQ #&*!10. ! ^ &0&*3! : *?'\$'O'&?<&(\$!V1+) \$?'12&>!52!\$*2\$0!K=&>!A8"@!H!5%'1*0!A8"7L!
 FIQ 6>\$N&*?'\$!51?+.) 3! : *?'\$'O'&?<&(\$!V1+) \$?'12&>!52!\$*2\$0!K=&>!A8"@!H!5%'1*0!A8"7L!

6<>) *!KU+H&? ; 10\$?!&!(. \$!- \$**0/> ; &*!&!5(&(\$! : *1;\$'01(/L!

"Q o 1*&! S \$!3!- . #!1*! ^ \$<'&>!B*01*\$ \$'1*0!K=&>!A88I!H!5%'1*0!A8"FL!

Z \$) R\$'!+,!(. \$!- . #!(. \$010!2+)) 1(((\$0J!

"Q ^ &R1>&!V<0. ' &3!# \$%&' () \$*(!+,!- . /0120!

AQ ` &,lg&!c&. '&!] &R3!# \$%&' () \$*(!+,!U. \$) 10(' /!

FQ ^+. &!6>g&. '&*!3!# \$%&' () \$*(!+,!- . /0120!

@Q 6R?<> . &[1] !6>0&1,3!# \$%&' () \$*(!+,!B>\$2('12&>!B*01*\$ \$'1*0!

7Q 6>!6>b<) &. 3!# \$%&' () \$*(!+,!B>\$2('12&>!B*01*\$ \$'1*0!

GQ U. &) &*! ^ 1/&*0+?&3!# \$%&' () \$*(!+,!- . /0120!

IQ Y&0+*!Z &0(3!# \$%&' () \$*(!+,!- . /0120!

9Q Y\$'\$) /!V&'(+*3!# \$%&' () \$*(!+,!- . /0120!

MQ 6' /&>!U. 1*(&3!# \$%&' () \$*(!+,!- . /0120!

"8Q E1&*0!- \$*0,\$!3!# \$%&' () \$*(!+,!- . /0120!

""Q Y&) \$0! i '<2g\$[3!# \$%&' () \$*(!+,!- . /0120!!

"AQ Baderaldeen Altazi, Department of Physics, Moffitt Cancer Center (graduated 2017)!

"FQ D&(1&*&!Z 1(13!# \$%&' () \$*(!+,!- . /0120!KO'&?<&(\$?!A8" IL!

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"@Q 6) &*!U.&C>&3!#\$%&'() \$*(!+,!B>\$2('12&>!B*0!*\$'1*0!KO'&?<&(\$?!A8" IL!

"7Q Z \$*(+!'Z<&b3!#\$%&'() \$*(!+,!- ./0120!KO'&?<&(\$?!A8"G)!

3(-.,.)\$./CD(,E/:(2/*F,B%)'G.'**

"Q!!!U+H+'O&*!g\$?!6 - 5!U+*, '\$*\$2\$, + '! : *? \$'O'&?<&(\$! S +) \$*!1*!- ./0120!&(! : 5=3!A8A8!!

AQ!!!X'O&*!g\$?!&!&(!

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