My personal approach of using the Iranian santour

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Use of double bridges on the santour

Picture

Advantages

- ✓ Making the most (and simultaneously) of the following features on the santour:
  - Diatonic, chromatic, modal, semi-tonal, micro-tonal, tempered and untempered
- ✓ Changing from one sound universe to another quickly (from a few seconds [moving of one or two bridges] to a maximum of 1 minute 30 seconds [moving 15 to 18 bridges]) without having to retune the strings (re-tuning a large number of strings is, of course, completely unimaginable in a concert)
- ✓ Selecting your concert program without being constrained by the tonality of the pieces while using only one santour
- ✓ Being able to change the pitch of a note during the execution of a piece without affecting the pitch of other notes
- ✓ Feasibility of solution on the santour built by any luthier

Notation

Coverage

There is no limit in terms of choice of notes. The following examples are from my personal choices and needs, which may change over time.

The notes to be selected by the left white bridges				The notes to be selected by the right white bridge				The notes to be selected by the left yellow bridges				The notes to be selected by the right yellow bridges	

Kook

			F		F	F #			F #	F #	F	F	B b	C
		E	E b		D #	E b	E b^	E		E	E b^	E b	A b	
D #	D	D b^	D b		D b	D b^	D	D #	D #	D	D b^	D b	G	
		C #	C		C	C #	C #				C #	C	F	
		B	B b		B b	B b^	B	B			B	B b	E b	E
A #	A	A b^	A b		A b	A b^	A	A #	A #	A	A b^	A b	D	
		G #	G		G	G #					G #	G	C	C #
		F #	F		F	F #	G #				F #	F	G #	B
E	E b^	E b	D		D	E b	E b^	E		E	D	C	B b	

Figure 1

Duplicates (F # F # D # or Eb) on the same notes are used to refine the positioning of the bridges in the case of some left-right combinations. This is explained in the section "Setting up".

Example of selection of notes for G Mahour

The figure below shows the location of the bridges for playing in G Mahour.

> For the hi E push the white bridge to the second position to the left

> For the low D push the yellow bridge on the third position

Mahour G - 442 4 442

			F		F	F #			F #	F #	F	F	B b	C		F	1	1	1	2
		E	E b		D #	E b	E b^	E		E	E b^	E b	A b			E	2	4	3	
D #	D	D b^	D b		D b	D b^	D	D #	D #	D	D b^	D b	G			D	3	3	3	
		C #	C		C	C #	C #				C #	C	F			C	1	1	1	
		B	B b-¼		B b	B b^	B	B		B	B	B b	E b	E	-¼	B	1	4	3	1
A #	A	A b^	A b		A b	A b^	A	A #	A #	A	A b^	A b	D			A	3	3	3	
		G #	G		G	G #				G #	G	G	C	C #		G	1	1	2	1
		F #	F		F	F #	G #				F #	F	G #	B		F	2	2	2	2
E	E b^	E b	D		D	E b	E b^	E		E	D	C	B b			E	3	3	1	

Figure 2

The numbered notation (the right grid) show the position of each bridge from the lowest note (1) to the highest note (2, 3 or 4).

The precision "-1/4" on the Bb is used to refine the position of the left white bridge with its combination with the position of right white bridge (the B note). This is explained further in the "Setting up" section.

Setting up

- Order 2 sets of bridges to a santour luthier.
- Start with a single note, for example the quadruple strings matching the D string of the white bridge (string 7 of the G santour).
- Suppose we want to move quickly from D Koron et D natural and vice versa on each side, allowing us to switch between the G Shur tuning to the tuning of its Avazs (Abuata, Afshari ...)
- Mount the 2 bridges in place of the single bridge.
- We refer here to D natural by D and to D Koron by Db^
- The idea is then to have a Db^ and a D for the positioning of each bridge

D	db ^		db ^	D
White left bridge			white right bridge	
position 2	position 1		position 1	position 2

Figure 3

- Using a tuner, identify the location of the two bridges side by side corresponding to the lowest notes you want on the white D string. In this example, the Db^s colored in the above table (Figure 3)
- Using a permanent marker, mark these 2 locations
- Identify the location of the 2 bridges corresponding et D and mark them

D	db ^		db ^	D
White left bridge			white right bridge	
position 2	position 1		position 1	position 2

Figure 4

- If you need to mix, for example Db^ on one side and D on the other side to be used in the same piece, check with your tuner to see if you need to readjust sligthly one of the two bridges (slightly to the left or to the right) in ordre to maintain the accuracy of the notes. As a fact, a change in the length of the string on one side, results in a change of the pitch of the note on the other side.

D	db ^		db ^	D
White left bridge			white right bridge	
position 2	position 1		position 1	position 2

Figure 5

- In this case, you can specify the adjustment either by a new marking directly on the strings or, if the adjustment is minimal, by an indication like +1, + 1/2... on the notation chart, letting know in which direction and to what extent the bridge should be adjusted.

D	db ^		db ^	D + 1/2
White left bridge			white right bridge	
position 2	position 1		position 1	position 2

Figure 6

- You can continue this exercise with the yellow bridge of the D string. This will allow you to quickly switch between the variants of the G Shur and its Avazs, D Nava and F Segah.
- To continue, double the bridges of the white and yellow B strings, this will allow you to quickly switch between the above dastgahas and G Homayoun and C Esfahan and vice versa.