CLAIMS:

What is claimed is:

1. A process comprising:

(a) treating a first hydrocarbon stream in at least one of a steam cracker, catalytic cracker, coker, hydrocracker, reformer, and the like, under suitable conditions to produce a second stream comprising C6-C10+ aromatic hydrocarbons~~, respectively, a steam cracked, cat cracked; coker, hydrocracker or reformed aromatic hydrocarbon stream~~; then

(b) dealkylation and/or transalkylation and/or cracking (D/T/C) of said second stream by contact with a suitable catalyst under suitable reaction conditions to produce a third stream having an increased benzene and/or toluene content compared with said second stream and a light paraffin by-product;

(c) methylating at least a portion of said third stream with a methylating agent to selectively produce para-xylene and optionally a light olefin and or light paraffin by-product.

2. The process of Claim 1, further including a step (d) comprising recovering para-xylene after step (c).

3. The process of Claim 1, wherein said second stream is converted in a single-bed naphthene aromatization, multi-bed reformer, or HDS reformer before the dealkylation and/or transalkylation and/or cracking (D/T/C) of step (b).

4. The process of Claim 1, wherein said first hydrocarbon stream, prior to step (a), and/or said second stream, prior to step (b), undergo at least one process prior to steps (b) or (c), respectively, said at least one other process selected from: (a) an isomerization process to convert ethylbenzene to xylenes; (b) a hydrotreating process to remove a portion or all of the di-olefins and/or a portion or all of the mono-olefins; (c) an extraction process to remove non-aromatic hydrocarbons; (d) a de-hexane process where C6 paraffins are

separated from the C6 naphthenes and benzene; (e) a de-benzene process to remove at least a portion of the benzene in the feedstock, optionally then recovered and/or recycled; (f) fractionation to remove toluene prior to the dealkylation/transalkylation/cracking reactor.

5. The process of Claim 1, wherein said first hydrocarbon stream is subjected to one or more of hydrotreating, reforming, isomerization, de-hexane and/or de-benzene and/or de-toluene and/or optionally with an extraction step to remove at least a portion of the benzene and/or toluene and/or paraffin from said feedstock prior to contacting the dealkylation/transalkylation/cracking reactor zone and/or the methylation reaction zone.

6. The process of Claim 1, wherein said first hydrocarbon stream comprises naphtha selected from the group consisting of (1) a pygas cut of the pyrolysis effluent from a steam cracking furnace; (2) Cat naphtha from a fluid catalytic cracker; and (3) reformate; (5) coker naphtha; (6) hydrocracked naphtha; (7) and mixtures thereof.

7. The process of Claim 2, wherein step (d) comprises the use of a crystallizer.

8. The process of Claim 2, wherein step (d) comprises the use of an adsorptive separation unit.

9. The process ~~of any one of the preceding claims~~ according to Claim 1, wherein said methylating agent is methanol.

10. The process of Claim 1, further comprising the step of fractionating at least a portion of the product of step (c), and recycling the overhead lighter products and including a step of purging of at least a portion of non-aromatics in said overhead.

11. The process of Claim 1, including at least one step of removing oxygen-

containing impurities from a process stream in said process.

~~10.~~12. A system comprising:

(a) at least one apparatus selected from a steam cracker, a cat cracker, and a reformer, fluidly connected to

(b) at least one reactor suitable for at least one of dealkylation, transalkylation, and cracking of a naphtha feed, and comprising a catalyst therefor, fluidly connected to

(c) at least one reactor suitable for methylation of benzene and/or toluene, fluidly connected to

(d) at least one crystallizer or adsorptive separation apparatus;

wherein (a), (b), (c) and (d) are fluidly connected in series;

optionally having an extraction unit, preferably liquid-liquid extractor or extractive distillation apparatus, upstream and fluidly connected to the one or more apparatus specified in (a).