WHAT IS CLAIMED IS:

1. A method, comprising:

providing a solid surface, a surface oligonucleotide bound to the solid surface and having a free 3’ end that is not bound to the solid surface, and a template polynucleotide bound to the solid surface and having a free 3’ end that is not bound to the solid surface, wherein at least a portion of the free 3’ end of the template polynucleotide that is not bound to the solid surface is configured to hybridize to at least a portion of the surface oligonucleotide such that a copy polynucleotide may be synthesized by extending the surface oligonucleotide using the template polynucleotide as a template;

providing a sequencing oligonucleotide, wherein the sequencing oligonucleotide is configured to hybridize to the at least a portion of the free 3’ end of the template polynucleotide that is not bound to the solid surface with greater affinity than the surface oligonucleotide such that the template strand preferentially hybridizes to the sequencing oligonucleotide; and

extending the sequencing oligonucleotide using the template polynucleotide as a template;

wherein the sequencing oligonucleotide comprises a modified nucleotide that enhances base pair binding, relative to a natural nucleotide, to a nucleotide of the template polynucleotide and wherein the modified nucleotide is a locked nucleotide or a bridged nucleotide.

2. The method of claim 1, wherein the nucleotide sequence of the surface oligonucleotide is the same as at least a portion of the sequencing oligonucleotide.

3. The method of claim 1, wherein the sequencing oligonucleotide comprises a plurality of modified nucleotide that enhances base pair binding, relative to a natural nucleotide, to a nucleotide of the template polynucleotide.

4. The method of claim 1, wherein 10% or more of the nucleotides of the sequencing oligonucleotide are modified nucleotides.

5. The method of any one of claims 1 to 4, wherein 50% or less of the nucleotides of the sequencing oligonucleotide are modified nucleotides.

6. The method of any one of claims 1 to 5, wherein the nucleotide sequence of the surface oligonucleotide is the same as a portion of the sequencing oligonucleotide, and wherein the modified nucleotides are comprised in the portion of the sequencing oligonucleotide having the same sequence as the surface nucleotide.

7. The method of any one of claims 1 to 6, wherein extending the sequencing oligonucleotide is a step in a process for sequencing a portion of the template polynucleotide.

8. The method of claim 7, wherein the sequencing process sequences a second index sequence of the template polynucleotide.

9. The method of claim 8, further comprising hybridizing an index primer to the template polynucleotide and extending the index primer using the template polynucleotide as a template to sequence a first index sequence of the template polynucleotide, wherein the first index sequence is different than the second index sequence.

10. The method of claim 9, wherein said hybridizing the index primer to the template polynucleotide and extending the index primer to sequence the first index sequence occurs prior to sequencing the second index sequence.

11. The method of any one of claims 1 to 10, further comprising hybridizing a first read primer to the template polynucleotide and extending the first read primer using the template polynucleotide as a template to sequence a first read sequence of the template polynucleotide.

12. The method of claim 11 as it depends from claim 9, wherein said hybridizing the first read primer to the template polynucleotide and extending the first read primer to sequence the first read sequence occurs after sequencing the first index sequence.

13. The method of claim 11 as it depends from claim 9, wherein said hybridizing the first read primer to the template polynucleotide and extending the first read primer to sequence the first read sequence occurs after sequencing the first index sequence and the second index sequence.

14. The method of any one of claims 1 to 13, further comprising synthesizing the copy polynucleotide by extending the surface oligonucleotide using the template polynucleotide as a template.

15. The method of claim 14, wherein said synthesizing the copy polynucleotide by extending the surface polynucleotide occurs after sequencing the first index sequence, the second index sequence, and the first read sequence.

16. The method of claim 14, further comprising hybridizing a second read primer to the copy polynucleotide and extending the second read primer using the copy polynucleotide as a template to sequence a second read sequence of the copy polynucleotide.

17. The method of any one of claims 1 to 16, wherein the solid surface is substantially planar.

18. The method of any one of claims 1 to 17, wherein the solid surface is the surface of a flow cell.